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THE SUSTAINING ECONOMIC FORCES AHEAD

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LETTERS OF TRANSMITTAL

DECEMBER 11, 1952.

To Members of the Joint Committee on the Economic Report:

For the information of members of the Joint Committee on the Economic Report and others interested, there is transmitted herewith an analysis by the committee staff of some of the major sustaining forces which are likely to influence the Nation's economy in the future. It is understood, of course, that these materials do not necessarily represent the views of the committee or any of its individual members.

JOSEPH C. O'MAHONEY,
Chairman, Joint Committee on the Economic Report.

DECEMBER 4, 1952.

Hon. JOSEPH C. O'MAHONEY,
United States Senate, Washington, D. C.

DEAR SENATOR O'MAHONEY: The year 1952 comes to a close with considerable discussion among economic analysts with respect to the economic outlook. Discussion centers on whether a recession is to be anticipated and what the prospects are for economic stability. Some economists believe there are reasons to expect recession, if not depression, because of a possible decline in Federal expenditures, feared overexpansion in private debt, or for the simple reason that we have had prosperity, stability and high levels of private investment for a long period.

This study undertakes to examine certain sustaining economic forces ahead. These and other forces, it seems to the committee staff, afford real opportunity for economic stability and growth in keeping with the goals of the Employment Act of 1946. They do not guarantee continued or uninterrupted prosperity, nor do we make any such predictions or forecasts. Rather, the analysis suggests that the economy has within itself powerful sustaining forces for a long time to come—forces which provide ample basis for business optimism.

No one can predict the demands of an adequate defense force on our national economy over the next decade. Military build-up goals on the basis of present schedules should be achieved by mid-1955. Major security expenditures are likely to rise from their present annual rate and remain at higher levels for several quarters.

The defense build-up goals and schedules provide for the maintenance of a military force of 3½ million men and for the procurement of heavy equipment as an insurance against future emergencies. For fiscal 1953 almost one-half of the military budget will go for day-to-day maintenance of military personnel in the three services; this expenditure cannot be reduced markedly without reducing personnel.

Expenditures for heavy military equipment cannot be reduced markedly without modifying the preparedness schedules. It is generally believed, however, that present goals and schedules will permit some decline in defense expenditures upon completion of the build-up.

The need for an early consideration of the probable situation "after the hump" was called to the committee's attention in mid-1951 in the staff materials accompanying the committee's report, "Inflation Still a Danger." The purpose of the report transmitted herewith is to look at the forces which will significantly affect the economy after we have passed the peak, under present schedules, of defense expenditures. We have made an inventory of some of the most significant of these forces, although not susceptible in all cases to quantitative measurement.

It is the conclusion of the staff that opportunities for economic stability and growth will be present and that satisfactory economic adjustments can be made, although posing challenging problems for private and public policy-makers. The significant forces supporting this conclusion are:

1. The needs for readjustment will come upon us less abruptly than at the end of World War II and in the form of a gradual sliding downward to a plateau of still high-level defense expenditures. In 1944 Government purchases for national security purposes took 41 percent of the gross national product. Two years later the percentage had fallen to less than 9 percent. Present national security expenditures account for about 15 percent of the gross national product and are not expected to decline much below 10 percent after the defense build-up has been reached.

2. Federal fiscal policies followed during the current defense build-up period have avoided the accumulation of deficits such as occurred during World War II. Although an administrative budget deficit is expected for the current fiscal year, in the six fiscal years 1947 through 1952 taken as a whole, largely as a result of congressional initiative with respect to tax increases and nondefense expenditure reductions following the outbreak of the Korean war, the Federal administrative budget showed a cumulative surplus of $3.8 billion ($22.2 billion on a cash basis) as against a deficit during World War II of $55 billion in 1 year. This near-balanced budget position will permit a reduction in taxes almost dollar for dollar of expenditure reduction as soon as the peak of expenditures has been passed.

3. The economy will not be faced with a problem of reabsorbing men into civilian occupations comparable with that during World War II, when the Armed Forces numbered 11 million and were reduced about 8 million men in the first year of demobilization.

4. It would be a tragic mistake to base our confidence in the economic outlook on the high level of Government expenditures for defense. There are other more powerful forces sustaining the economy at high levels. Foremost of these is population growth in the United States. In 1937 the population to be fed, clothed, and housed was expected to increase on the average by some 900,000 persons per year over the then succeeding decade or decade and a half. Today, conservative estimates place the anticipated average annual increase for the next decade at twice that figure. If the population by 1960

reaches the seemingly probable level of 175 million, it will mean an increase during the decade of the 1950's of approximately 24 million as compared with about 19 million during the 1940's. It is of vital importance, of course, that an increase in productivity accompany the increase in population and that this increase in productivity be widespread among all segments of the population and all regions of the country.

5. To house the increased population and not lower present standards, housing requirements for the remainder of the 1950–60 decade will average at least as high as the annual average constructed during the "good years" 1947 to 1952.

6. Similar demand forces are present in the fields of private plant and equipment investment. True, since the war and during the period of the defense build-up, outlays for plant and equipment have reached unprecedented levels. In spite of these high levels of fixed capital investment, we have barely reached what might have been the levels had depression and war not interrupted our normal rate of growth.

7. In agriculture, if we are to eat as well in 1975 as we are eating now, we will, for example, have to increase our annual pig crop by an amount equal to all of the pigs produced in the leading States of Iowa and Nebraska in 1950. Producers of other crops will be faced with comparable opportunities and demands for expansion.

8. The underlying requirement for increased public works is apparent from the school needs of almost every community. In the decades between 1930 and 1950, while the general population was rising, the number of pupils enrolled in the public elementary and secondary schools remained substantially unchanged. In the decade between 1950 and 1960, we may expect an increase of more than 27 percent in the number of pupils enrolled. Based upon estimates of the Office of Education, $20 billion of additional school construction will be required in this decade to take care of the accumulated backlog, to offset depreciation, and to take care of the increased enrollment.

9. To meet the minimum standards suggested by the Public Health Service Act, this Nation will need to provide additional hospital beds in the amount of $14 billion, according to a detailed study of existing beds and needs by the Public Health Service based on data submitted by the various States.

10. Recent highway studies estimate that, after allowing for growing obsolescence, it will take more than $7 billion per year to maintain and adequately modernize existing roads to meet the need of the continually expanding number of motor vehicles.

Taken as a whole, the evidence accumulated in this report indicates that, in most lines of investment, the "good" years of the recent past may well become the normal pattern for the years ahead. It is estimated that the investment needs to be met by 1960 in the areas enumerated in this report will reach $500 billion at today's prices. (Housing, $100 billions; producers' durable equipment and nonresidential construction, $300 billions; highways, $60 billions; schools and hospitals, $40 billions.) This figure does not include any allowance for the vast, undetermined investment opportunities in agricultural techniques or for needed public investment in the many fields other than schools, hospitals, and highways.

With the stimulus of the indicated investment opportunities, private consumption by the continually increasing population may well be expected to surpass even the high levels of recent years, particularly with constant improvements in productivity and personal income.

From the standpoint of contributing to economic stability and expansion, we must count primarily on the flexibility and mobility of the private economy. But we must not overlook the contribution which can be made through flexibility in Federal fiscal, monetary, and regulatory programs.

Some of the promising devices for insuring that construction of needed public works by Federal, State, and local governments are timed to make the most effective use of manpower and materials as they become available have been the various programs for encouraging the widespread use of advance planning. These programs are analyzed briefly in appendix A. As is pointed out in this discussion, the authority for one important program, that of providing Federal loans for advance planning by State and local governments, has been allowed to lapse during this period of material shortages. While a shelf of nearly $2.5 billion is still available in planned projects—many of which could not be built because of material limitations—the necessity of reviewing these plans with respect to current needs and the desirability of having the kind of program flexibility which such plans permit suggest looking into the need for similar or improved legislation at this time.

This report was prepared by William H. Moore and John W. Lehman. Other members of the committee's professional staff participated in reviewing the data and the findings. While the staff has had the cooperation and active help of technicians from the Federal executive agencies and from outside the Government, the staff assumes full responsibility for the use of information supplied and the conclusions presented.

GROVER W. ENSLEY, *Staff Director.*

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THE SUSTAINING ECONOMIC FORCES AHEAD

I. Beyond the Peak in Defense Expenditures

Indications for the near future are that our already large military expenditures will continue to rise—at least for several quarters. But that they may ultimately level off to a stand-by or maintenance basis seems a reasonable assumption, barring any worsening of the international situation. While it is certain that even then defense requirements will continue to absorb a considerable portion of the national output of goods and services, the prospect that some cutbacks can be made suggests the probability of a "postpeak" era. The prospect of such a period of decreasing military demands raises questions which were familiar to the postwar period of World War II but which must now be examined in a somewhat different focus than that in which we viewed them before. Many of the problems of economic adjustment anticipated after World War II, and so carefully cataloged and studied in governmental and private reports during the 1942–45 "postwar planning" era, might be expected to be with us again, though with important differences.[1] Indeed, between the "postwar" period then and the period which we may now look forward to after the defense "peak," the differences are, economically, far more important than are the similarities. Lest one fall into the error of drawing simple parallels or analogies between the situation then—postwar—and the situation to come—postpeak—it is worth while to list certain points of difference.

It seems quite likely that the United States will not this time enter into any sharply defined period of military demobilization or reconversion such as could be foreseen (and did transpire) at the end of World War II. During the war we could look forward to clearly recognizable terminal dates for active fighting—that is, to a kind o terrace development in military cut-backs as the wars on the respective European and Japanese fronts were expected to end at different times.

Circumstances today seem much more likely to bring, after the peak, a gradual sliding downward to a plateau of still high-level defense expenditures—a plateau the duration of which may be expected to extend more or less indefinitely into the future. The possibility of "all-out peace" with curtailed armaments and sharply lowered defense expenditures continues, of course, to live in the world's hopes and its possibility cannot therefore be disregarded. Unfortunately,

[1] Woytinsky, W. S., "Postwar Economic Perspectives," Social Security Bulletin, vol. 8, No. 12, December 1945 Social Security Board, Federal Security Agency; Report No. 539, 78th Cong., 2d sess., Special Committee on Post-War Economic Policy and Planning, U. S. Senate; House Special Committee on Post-War Economic Policy and Planning, 79th Cong., 1st sess.; National Planning Association, planning pamphlets Nos. 43 and 44, National Budgets for Full Employment; local studies of employment after the war, carried out under the guidance of the Field Development Division of the Committee for Economic Development in a number of communities; and, Markets After the War, prepared and issued by the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce and reprinted for wider distribution by the Committee for Economic Development.

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the prospect of its attainment does not seem to be sufficiently realistic in the foreseeable future to dwell at this time upon the economic readjustments it might entail.

In any case, the need for readjustment—post-peak or with the dawning of peace—will come upon us less abruptly and less definitively. A gradual transition should afford opportunity for measures and plans which will render dislocations even less disruptive of employment and production patterns than those successfully overcome in 1946–50.

Another difference between the situation ahead and that which prevailed after our last big military effort is that, when and if military expenditures can again be leveled off, the magnitude of the cut-backs will be far, far less than those which occurred at the end of World War II. At that time Government purchases for national security purposes dropped from $88 billion in 1944 to $19 billion in 1946. Stated in terms of constant 1951 prices, the reduction in security expenditures is even more striking, falling as they did from a level of $139.3 billion in 1944 to $24.5 billion in 1946. In 1944 Government purchases of goods and services for national security purposes took 41 percent of our gross national product; 2 years later the percentage had fallen to less than 9 percent. At that time the expected dispersal and necessity for reabsorption into civilian occupations of Armed Forces numbering over 11 million—equivalent to 21 percent of the then employed civilian labor force—was clearly a formidable problem. Those who were called upon to make forecasts and plans with the knowledge that cut-backs of such proportions were in store for the country sooner or later can certainly be pardoned if they then viewed the postwar economic prospects with concern.

In contrast with these figures, the most optimistic predictions today are that after the present defense build-up is completed, it will not be possible to cut major national security expenditures by more than $20 billion below their projected peak. Net decreases in the Armed Forces, numbering today only somewhat above 3.5 million, will certainly not add substantially to the number of job seekers in the civilian labor force. While one hesitates to use the word "gap" in connection with this hoped-for, ultimate reduction in defense effort, the figures do indicate that the problem of readjustment in the leveling-off of defense expenditures and manpower will be relatively small. It will certainly be of quite a different order of magnitude than after World War II.

A third point of difference in the present situation from that which prevailed during and after World War II lies in our national attitudes and preparations for economic change. The most popular recommendations for Government policy and action during World War II, for example, called for the formulation of a detailed "X-Day" plan which would estimate cancellations in advance, the resources likely to be released, and weigh these selections as to their contribution to the speedy resumption of civilian production and the orderly change-over from war to peace.

The discussion and existence of such specific over-all plans for policy and actions to be taken by business and Government at the war's end doubtless did do much to smooth the economic difficulties of the transition period.

Today's plans are more flexible and less suggestive of the "disaster squad" approach. With the passage of the Employment Act of 1946, a broadened concept of Government responsibility for policy-making to avoid economic difficulties was recognized.[2] Policy is no longer one of relying on specific X-Day plans but one which recognizes, to quote the act:

> the continuing policy and responsibility of the Federal Government * * * to foster and promote free competitive enterprise and the general welfare, conditions under which there will be afforded useful employment opportunities, including self-employment, for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power.

An important consequence of this change in point of view respecting the Government's role has been that current economic policies being followed during the defense build-up period have been directed not only toward maintaining and protecting levels of economic and defense activity already achieved, but have been developed with an eye to minimizing possible subsequent distortions resulting from these programs.

A few other steps taken will serve further to illustrate the point. Immediately after the Korean invasion various agencies, including the Joint Committee on the Economic Report, recognized the extreme desirability of supporting the defense effort as fully as possible by reduction of nondefense expenditures and out of the proceeds of increased taxation rather than incurring Government deficits. Within a year and a half the Congress enacted three tax bills which have gone far toward keeping budget deficits at a minimum during this period. While these tax bills and expenditure reduction measures have been in effect during only a portion of the period, the recent state of the Federal Government's budget, as a consequence, presents a marked contrast with pre-World War II budgets. In the six fiscal years 1947 through 1952 taken as a whole, the Federal administrative budget shows a surplus of $3.8 billion ($22.2 billion on a cash basis), a result which, at least in part, was due to the persistent struggle against inflation.

During World War II, the budget deficit exceeded an annual rate of $55 billion, necessitating in the postwar period tremendous expenditure reductions before the stimulating effects of tax reduction could be realized. Presently and happily, however, we should be able to reduce taxes almost dollar for dollar of expenditure reduction, once the peak of expenditures has been passed and the comparatively small deficit has been eliminated.

Recognizing that, in the long run, success in the struggle against aggression depends upon a strong economy, the Congress and the mobilization agencies have especially emphasized production and stability. Development of raw material sources, conservation of scarce materials, effective use of manpower and equipment have all been the considered aim of both business and Government. The Joint Committee on the Economic Report, for example, has conducted extensive studies on credit control, debt management and their effects on economic mobilization and has prepared reports on the

[2] Public Law 304, 79th Cong., 2d sess., 15 U. S. C. 102 as amended.

importance of industrial dispersal from the point of view of national security and of strengthening the domestic economy.[3]

Continuous economic study of this sort pays off in many ways. A single example will serve to illustrate. On June 30, 1952, the banking system held 32 percent of the total Federal debt outstanding as compared with 42 percent at the peak of the debt, and 39 percent before our entry into World War II. While much more remains to be done in the distribution and funding of the debt, this gradual shifting of the Federal debt into the hands of non-banking holders is the product of considered plans for strengthening the economy and the Government's credit.

This Nation has, in the months since Korea, brought about an expansion in our capacity to produce, meanwhile maintaining a strong civil economy which is the ultimate of military power. Measured in 1951 prices, total output has risen from an annual rate of about $304 billion in the second quarter of 1950 to almost $335 billion in the second quarter of 1952.

The Nation thus approaches the hoped-for day when defense expenditures can be cut back in a generally sounder and better-prepared state than before. It seems quite clear that there will be no need for disposing of large quantities of surplus materials; the gradual transition from "more defense" expenditures to "less defense" expenditures will preclude the need for undergoing the disruptions and uncertainties inherent in large-scale war contract cancellation and rescission; the nature of the current military build-up program is such that large-scale reconversion of plants and assembly lines is not likely to present itself as a problem overnight; net demobilization of the present moderate Armed Forces is not at all likely to add materially to the labor force seeking employment in the foreseeable future. Added to all of these considerations, we have the consciousness of responsibility on the part of both business and Government and a greater appreciation of the need for flexible machinery for dealing with changing economic conditions—should they regrettably turn in the direction of a worsened international situation or, as is always our hope, in the direction of a more peaceful world.

II. Our Changed Population Outlook [4]

As a threat to economic stability, the ultimate decline in the rate of defense expenditures pales into insignificance beside other overriding forces on the horizon making for growth in the national economy during the years—and decades—ahead. The fact is that the dynamic forces for growth in the national economy during the late 1950's give prospect of surpassing anything that the peacetime world has witnessed for several generations. This study concerns itself especially

[3] General Credit Control, Debt Management and Economic Mobilization (materials prepared by the committee staff for the Joint Committee on the Economic Report), Joint Committee Print, 82d Cong., 1st sess.; Monetary, Credit, and Fiscal Policies (Report of the Subcommittee on Monetary, Credit, and Fiscal Policies of the Joint Committee on the Economic Report), S. Doc. 129, 81st Cong., 2d sess.; Monetary Policy and the Management of the Public Debt (Report of the Subcommittee on General Credit Control and Debt Management of the Joint Committee on the Economic Report), S. Doc. 163, 82d Cong., 2d sess.; The Need for Industrial Dispersal (materials prepared by the committee staff for the Joint Committee on the Economic Report), Joint Committee Print, 82d Cong., 1st sess.

[4] Statistical materials and estimates included in this section are taken from Current Population Reports, Population Estimates, Series P-25, No. 43, August 10, 1950; No. 48, March 22, 1951, No. 58, April 17, 1952, Population—Special Reports, Series P-45, No. 5, April 30, 1945; Population, Series P-3, No. 15, July 23, 1941; and Forecasts of the Population of the United States, 1945-75, June 9, 1947. Bureau of the Census, U. S. Department of Commerce.

Additional estimates and supplemental materials have been supplied directly by the Population and Housing Division of the Bureau of the Census.

with these forces as they manifest themselves in our own country since few will deny that the place of the United States in the world economy is such today that the course which it takes becomes the dominant factor in the economic world as a whole.

Never before has the Nation faced the potential demand for civilian goods and services that it does in the years immediately ahead. The change in outlook is so great that it often goes unappreciated. During the period just preceding World War II, when much of the peacetime thinking of this generation was conditioned, many experts were writing apprehensively of the effect of an already declining birth rate and the prospective leveling off of the rate of population growth. Then, too, as a pessimistic heritage left over from the depression, there was widespread concern among those in positions to influence the economic and business climate lest the great era of investment opportunity had passed with "the frontier," already pushed beyond the far edge of the prairie on to the beaches of the Pacific. The concern both about a static population and about economic maturity now seems no more than an erroneously short-sighted passing phase.

First, we shall take up the significant reversal in trend which has characterized population growth in recent years. While population increase does not of itself guarantee economic prosperity, the characteristic urge of the American people for an ever-rising standard of living and the productivity capacity of the American economy have always responded dramatically to the stimulus of such new demands.

In 1940, the total population of the United States was 132,100,000. In 1937 a series of population projections were prepared by the Scripps Foundation for Population Research. In 1941 the Bureau of the Census selected for publication the one of these ("medium" fertility and mortality and no net immigration) that gave the expected 1950 population of 140,600,000 persons. As late as 1947 the Bureau and the Scripps Foundation, revising their earlier projections upward, estimated that by 1950 the population would reach about 145,000,000. Even this revised near-term estimate fell far short of anticipating the change that was actually taking place in our national growth pattern. When we got around to counting the population in the regular 1950 census, it turned out that this revised estimate was still 5,000,000 too low and that there were actually 151,700,000 resident (or overseas in the Armed Forces). Each of the demographic factors underlying population change contributed its share to the divergence between expectations and events.

These figures on the way actual population has outrun predictions are not cited with a view of being in any way critical of those who made the projections. On the contrary, the figures are cited solely to emphasize the profound change which has occurred in these most elemental data with which business forecasters and planners must today reckon as compared with the situation barely a decade ago.

In 1937 businessmen and Government officials, relying on the best expert opinion, could lay their plans for markets and investment needs on the expectations that the United States population to be fed, clothed, and housed might increase on the average by some 900,000 per year over the then succeeding decade or decade and a half.

Today similar business and public plans based upon conservative, middle-of-the-road estimates may safely anticipate for the next decade an annual increase in total population of about twice that figure. If

one chooses to follow what the Census Bureau calls its high projections—that is, those based on "low" mortality, "high" fertility, and "high" net immigration assumptions—the annual increase will be in the order of 2,800,000 per annum or more than three times the prewar rate of increase (table 2).

In this connection attention is called to table 1 which shows yearly estimates of the total population and annual increases in population from July 1, 1931, to July 1, 1952. It will be observed that the annual increases in the postwar years have risen to 2½ to 3 times the depression lows. Perhaps even more significant, the percentage rate of annual increase has itself more than doubled even on the ever-expanding base.

TABLE 1.—*Estimates of the total population of the United States with annual increase: 1931–52 (estimates as of July 1; each year)*

[Estimates from 1940 on include Armed Forces overseas]

Year	Total population (in thousands)	Increase over previous year	Percentage increase over preceding estimate	Year	Total population (in thousands)	Increase over previous year	Percentage increase over preceding estimate
1931	124,040	963	0.8	1942	134,831	1,454	1.1
1932	124,840	800	.6	1943	136,719	1,888	1.4
1933	125,579	739	.6	1944	138,390	1,671	1.2
1934	126,374	795	.6	1945	139,934	1,544	1.1
1935	127,250	876	.7	1946	141,398	1,464	1.0
1936	128,053	803	.6	1947	144,129	2,731	1.9
1937	128,825	772	.6	1948	146,621	2,492	1.7
1938	129,825	1,000	.8	1949	149,149	2,528	1.7
1939	130,880	1,055	.8	1950	151,677	2,528	1.7
1940	132,114	1,234	.9	1951	154,360	2,683	1.8
1941	133,377	1,263	1.0	1952	156,981	2,621	1.7

Source: Bureau of the Census, U. S. Department of Commerce.

Table 2, to which we have already referred, presents the current provisional projections as made (April 1952) by the Census Bureau covering the period from July 1, 1953, to July 1, 1960. In making its projections, the Bureau of the Census marks out a range within which it seems highly probable that the actual population size will fall. Three alternative sets of assumptions are made as to the future course of mortality, fertility, and immigration. The designations "low," "medium," and "high" are applied to these "forecasts," corresponding to the relative order of the number of deaths, births, and immigrants, implied or assumed. At one extreme, what is known as the "low series" represents a minimum projection based on assumptions of relatively high mortality, low fertility, and low net in-migration. At the other extreme, the so-called "high series" is based upon assumptions of "low" mortality, "high" fertility, and "high" net immigration. While the indicated range appears wide—a difference of nearly 15,000,000 between the high and low projections for 1960—population experts feel that any narrower range would give a misleading impression as to the accuracy of their prediction of future population based upon present knowledge.

As a technical matter, the Bureau warns also against a natural temptation to place easy reliance on the "medium" series. The "medium" represents not an average of some kind upon which plans

and policies may be based with confidence, but implies a set of assumptions, any deviation from which may send the actual course of populations off toward either limit of the range. Finally, it is well to note that neither the "high" nor "low" assumptions as set out in table 2 are to be taken as the highest or lowest possible.

TABLE 2.—*Projections of the total population of the United States, including Armed Forces overseas, July 1, 1953, to July 1, 1960*

Year	Total population (in thousands)			Increase over previous year			Percentage increase over preceding estimate		
	Low series	Medium series	High series	Low series	Medium series	High series	Low series	Medium series	High series
1953	158,488	159,216	160,092	1,507	2,235	3,111	1.0	1.4	2.0
1954	159,974	161,296	162,943	1,486	2,080	2,851	.9	1.3	1.7
1955	161,190	163,186	165,758	1,216	1,890	2,815	.8	1.2	1.7
1956	162,154	164,890	168,532	964	1,704	2,774	.6	1.0	1.6
1957	162,990	166,520	171,333	836	1,630	2,801	.5	1.0	1.6
1958	163,780	168,132	174,174	790	1,612	2,841	.5	1.0	1.6
1959	164,504	169,680	176,998	724	1,548	2,824	.4	.9	1.6
1960	165,174	171,176	179,812	670	1,496	2,814	.4	.9	1.6

Source: Bureau of the Census, U. S. Department of Commerce.

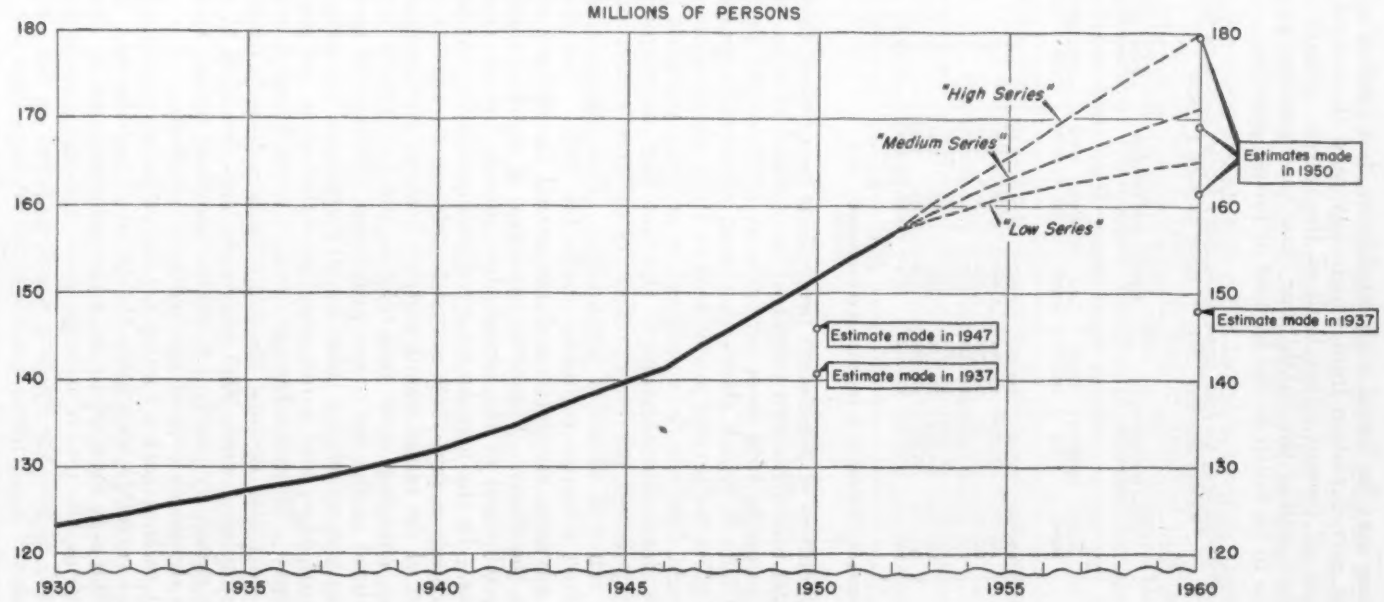
The difficulties of population projections being what they are, the reader must follow his own judgment as to which of these projections or series seems to him most probable as a "forecast" for the years ahead. Chart 1, which shows the trend of actual population since 1930 and plots the several projections to 1960, suggests several things which should, however, be considered in arriving at such a judgment.

First of these considerations is the fact that in recent years, the trend of population, perversely defiant of the most expert opinion, has regularly run well ahead of projections. This was true of the previously cited advance estimates made for 1950. The divergencies between advance estimates and the actual figures are graphically shown on the chart. The same tendency of postwar population to top the predictions of the experts has already proven true of 1960 projections. In the months since projections for the ensuing decade were first made in mid-1950, actual population growth has run in the upper part of the range, about midway between the medium and the high series, bringing us at mid-1952 to the 157,000,000 level nearly 2 years ahead of the low series projection. Barely 20 months after making the projections for 1960, actual population was already within a million of what had a few months earlier been set forth as the "high series." Thus the Bureau of the Census found it expedient in mid-1952 to revise upward the projections originally made in 1950. Data accumulated since 1950 suggested that the level of projection should be raised by nearly 1.8 million (medium series) and that the low series should be revised upward by 3.5 million.

Chart 1 calls attention to another factor to be considered by those who would correctly anticipate the trend of population. If population by 1960 is to level off to the point contemplated by the Bureau's medium series, the rate of increase must undergo a down-turn almost as "violent" as was the up-turn which occurred in the 1940's. The word "violent" is, of course, used figuratively here since any change in direction or the "slope" of a demographic series is necessarily gradual,

CHART 1

UNITED STATES POPULATION, 1930-1952 WITH PROJECTIONS TO 1960*



* Annual estimates and projections, including armed forces overseas.

SOURCE: Bureau of the Census, U.S. Department of Commerce

particularly when the base is large. In order for the actual course of population growth to follow the pattern of the so-called "low series," an even more marked downward bend in the trend line would be called for as the projection lines on chart 1 clearly show. It would be folly, of course, to contend that such down-turns could not take place, but it does seem safe to say that such changes in direction are not likely to take place except under the stress of strong forces. On the face of things, however, the medium and high series—perhaps somewhere between them—seem a more likely course than the pattern suggested by the low projection line.

Since changes in death rates and in the amounts of net immigration are usually relatively small, having consequently little effect on the annual increase in total population, the chances of a leveling off in the recent rate of population increase depend largely upon the course of the birth rate. In the postwar years 1946–51, the average annual number of births has been 3,663,000, or 54 percent higher than it was in the pre-war depression years of 1932–37. Still more remarkable has been the change in the birth rate per thousand population. From an average of about 19.0 per thousand population in the period of the middle 1930's, the birth rate has risen to an average of 24.9 in the postwar years—an increase in the rate itself of approximately one-third. As Dr. Joseph S. Davis has written recently—

> It is difficult to find any historical precedent for so marked a rise from trough to plateau of births. Even more astounding compared with expectations, the 1951 births approximately equalled the 1947 peak. The moving 5-year total of births has been rising ever since 1937.[5]

A generation of demographers, possessed with the conviction that total United States population would very soon reach a peak, have found it hard to interpret the long-run significance of the marked and persistent increase in births which has occurred in postwar years. Everyone was prepared to expect some temporary postwar peak, explaining it as due in part to a normal catching-up with the depression arrears and in part with bunching-up of wartime deferments. Following the peak, a sharp dropping-back to the levels of the 1930's was, however, confidently expected. To date this anticipated decline has not begun, as an examination of table 3 discloses. Preliminary data for the early months of 1952 show no change in the trend, with 1952 running ahead of 1951.

In the face of this persistent high level of births, experts have been forced to revise their projections and have generally done so by pushing forward the timing of the delayed but still expected downturn in the birth rate. All of the current Census Bureau projections for 1960, as shown in table 4, thus rest upon assumptions of a declining birth rate throughout the remainder of the 1950's. In spite of the substantial increase in population, the so-called "high series" implies only about as many births per year in 1958–60 as occurred in 1951.

[5] Davis, Joseph S., Our Changed Population Outlook and Its Significance, American Economic Review, June 1952, p. 310.

TABLE 3.—*Number of births and birth rates per thousand population, United States, 1910–52* [1]

Year	Number	Rate	Year	Number	Rate
1910	2,777	30.1	1932	2,440	19.5
1911	2,809	29.9	1933	2,307	18.4
1912	2,840	29.8	1934	2,396	19.0
1913	2,869	29.5	1935	2,377	18.7
1914	2,966	29.9	1936	2,355	18.4
1915	2,965	29.5	1937	2,413	18.7
1916	2,964	29.1	1938	2,496	19.2
1917	2,944	28.5	1939	2,466	18.8
1918	2,948	28.6	1940	2,558	19.4
1919	2,740	26.2	1941	2,701	20.3
1920	2,950	27.7	1942	2,988	22.2
1921	3,055	28.1	1943	3,102	22.7
1922	2,882	26.2	1944	2,938	21.2
1923	2,910	26.0	1945	2,858	20.4
1924	2,979	26.1	1946	3,411	24.1
1925	2,909	25.1	1947	3,818	26.6
1926	2,839	24.2	1948	3,638	24.9
1927	2,802	23.5	1949	3,650	24.6
1928	2,674	22.2	1950	3,628	24.0
1929	2,582	21.2	1951	3,833	25.0
1930	2,618	21.3	1952	3,881	24.9
1931	2,506	20.2			

[1] Number of births during the calendar year in thousands. Adjusted for underregistration. Based on estimates of Whelpton, Scripps Foundation, and National Office of Vital Statistics in the Public Health Service. 1950–52 estimated.

Source: Davis, Joseph S., Our Changed Population Outlook and Its Significance, American Economic Review, June 1952, p. 311.

TABLE 4.—*Projections of total births in the United States by calendar years, 1953 to 1960, with birth rates*

[Projections of births are consistent with projections of total population shown in Current Population Reports, Series P–25, No. 58]

Calendar year	Births (in thousands)			Birth rate per thousand population		
	Low series	Medium series	High series	Low series	Medium series	High series
1953	3,068	3,388	3,812	19.5	21.4	24.0
1954	2,808	3,220	3,807	17.7	20.1	23.5
1955	2,571	3,060	3,801	16.1	18.9	23.1
1956	2,395	2,934	3,798	14.9	17.9	22.7
1957	2,315	2,870	3,800	14.3	17.4	22.3
1958	2,284	2,839	3,810	14.0	17.0	22.0
1959	2,262	2,818	3,832	13.9	16.7	21.8
1960	2,252	2,810	3,846	13.7	16.5	21.5

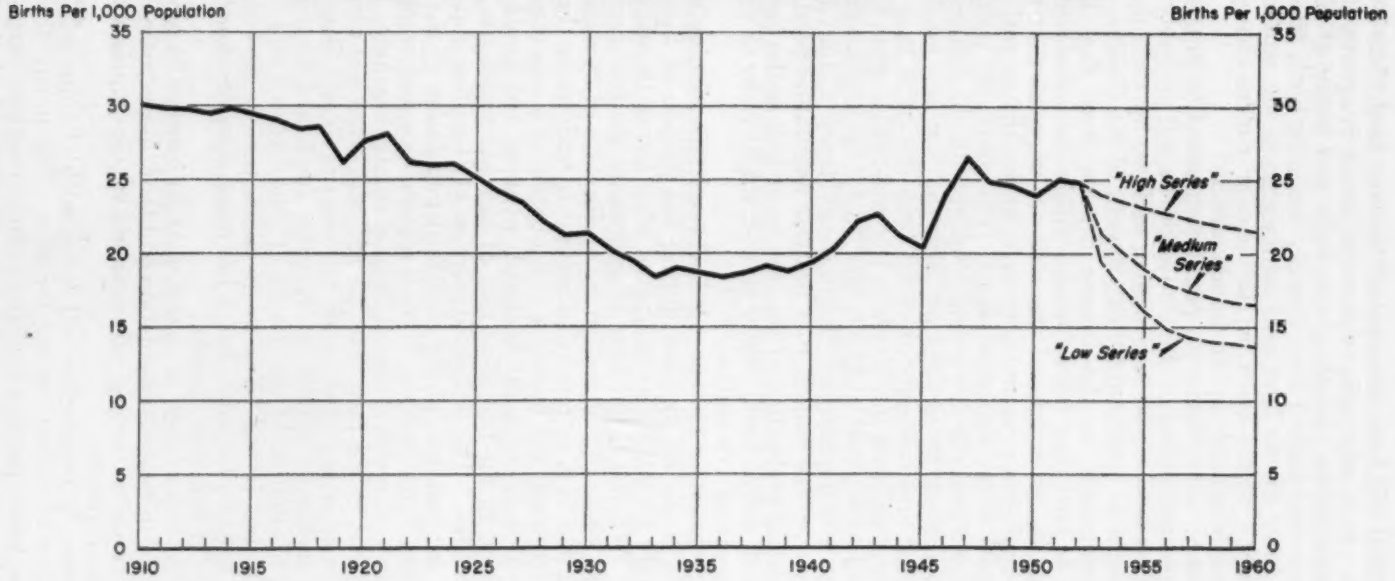
[1] Births divided by mid-year population projection excluding armed forces overseas estimated to remain constant at the 1952 level.

Source: Bureau of the Census, U. S. Department of Commerce.

The trend of the birth rate per thousand population since 1910, together with the rates implied by the three alternative projections for 1960, are shown in chart 2. Instead of a birth rate of 24 to 26 per thousand population which has characterized the postwar years (down to and including 1952), the Census Bureau projections imply a decline by 1960 to 21.5 per thousand in the so-called high series and to about 14 per thousand in the low series. In some ways the chart speaks almost too eloquently in support of the Bureau's high series projection as being perhaps the more realistic; it conforms most closely to the levels of most recent years and does meet the "requirements" of those who foresee a gradual approach to more "normal" levels. Each of the other two projections assumes that the rate will continue to decline much as it did in the decade of the 1920's and

CHART 2

UNITED STATES BIRTH RATE PER THOUSAND POPULATION ESTIMATES AND PROJECTIONS, 1910–1960



NOTE: 1953–1960: Births divided by mid-year population projection excluding armed forces overseas estimated to remain constant at the 1952 level.

SOURCE: Bureau of the Census, U.S. Department of Commerce

that by 1955 it will have returned all the way to the low levels of the mid-1930's. It is only right to caution, however, against jumping at any easy conclusion. Much of the logic and many of the reasons which at one time argued for a steadily declining birth rate may still be valid. After all, we have seen an upsurge in the rate in the past 10 years which should warn us that similar violent changes in the trend are not impossible in the decade ahead.

In summary, the evidence on population seems to suggest that by 1960 the total population of the United States will probably reach 175 million. This level would be less than midway between the medium and high series as projected by the Bureau of the Census. While it must be recognized, as the Census Bureau does, that the actual population in 1960 may fall anywhere within the calculated range or even outside it, the weight of the evidence suggests that the actual course of population is more likely to lie in the higher, rather than in the lower, part of the indicated range. The continued postponement of the expected postwar downturn, coupled with the further fact that the Census Bureau projections on both the low and medium series assume rather unrealistically that by 1955 the birth rate will have fallen to the depression low levels in the mid-1930's, seem to warrant our assigning substantial weight to the "high" fertility assumptions in the projections of population. From the evidence of chart 1, we have noted, moreover, the tendency of postwar population persistently to top the best-laid projections of the experts as well as the fact that the present trend, unless significantly altered, might carry us even higher than the suggested 175 million.

If the population by 1960 does indeed reach this seemingly probable level, it will mean an increase during the decade of the 1950's of approximately 24 million as compared with about 19 million during the 1940's. While it is not easy to appreciate the full significance of the dynamic forces put in motion by an increase of 24 million in our total population, it is extremely important to underscore the fact that this would represent not merely a continuation of a rate of population growth to which our economy is already attuned, but would represent an acceleration in the historical rate of increase which has prevailed in recent decades. The estimated increase of 24 million in population, equivalent, for example, to the combined population of the States of New York and Pennsylvania, in itself represents a new market factor, the significance of which is almost beyond comprehension. But, even more significant is the fact that the national economic plant, which has found itself in the years since the close of World War II busily engaged in trying to supply the housing, food, and clothing for 19 million new population in the decade of "the forties," will find in the next decade that it will have to do much more. Not only will a similar job have to be done, but a job more than one-fourth greater than during the previous decade.

It is of vital importance, of course, that an increase in productivity accompany the increase in population and that this increase in productivity be widespread among all segments of the population and all regions of the country.

The increase in population will bring with it some addition also to the number of people looking for jobs. The prospective population increase has a particular characteristic of utmost importance in this connection; the numbers of those to be housed, clothed, and fed will, it is expected, increase far more proportionately than will the

numbers in age groups making up the usual working force. The 24 million increase in total population anticipated during the decade will occur unevenly among the various age groups, as the following estimate shows:

Age groups	Projected population increases, 1950–60	
	In millions	Percent of 1950
All age groups	24.0	15.8
Under 10 years	3.8	12.8
10 to 19 years	8.7	39.7
20 to 44 years	1.6	2.8
45 to 64 years	6.2	20.1
65 years and over	3.6	39.0

The population 20 to 64 years of age is thus expected to increase by only 7.8 millions as compared with an increase of more than twice that amount, 16.2 millions, in the other age groups. In other words, two-thirds of the expected increase will occur in the "dependent" age classes made up of older, retired, or retirable groups and the infant and child groups. The life expectancy at birth in the United States has increased from 59.7 years in 1930 to 62.9 years in 1940, 67.6 years in 1949 and may be expected to increase still further.

III. Housing Requirements Exceed Recent Construction Levels [6]

Housing experts estimate that during the decade of the 1950's our total housing construction job should average close to 1,400,000 nonfarm units a year, taking into account the added housing needed to take care of our expanding population, normal replacement, the rehabilitation of some substandard housing, and the offsetting of miscellaneous losses arising through fire and disaster. To the degree that actual home building falls below this figure in any year or years—as it did, for example, in 1951 because of material shortages and credit restrictions—the need for housing construction is merely postponed and the job compressed into fewer and fewer years.

Everyone has, of course, been impressed by the high level of our house-building activities during the 5 years 1947–51 in which new nonfarm residential "starts" averaged more than 1 million units per year. In 1950, the all-time high year, 1,396,000 units were started. In 1925, the highest prewar year, 937,000 units were started. As bench marks from which to measure the economic significance of the 1,400,000 units per year estimated to be needed for the future, these figures clearly suggest that there need be no let-up in housing construction in the near future. What have seemed like good, even boom, years of the recent past may well become the normal or minimum construction pattern for some years to come.

There will doubtless be persons disposed to question or discount these estimates as either unrealistic, idealistic, or overly optimistic. Out of understandable skepticism some will undoubtedly contend (1) that the figures themselves overstate the problem, particularly since

[6] Materials and estimates included in this section have been drawn from publications and supplemental information furnished by the Housing and Home Finance Agency. Chief among these sources has been the pamphlet How Big is the Housing Job?, Division of Housing Research, Housing and Home Finance Agency; see also the Housing Situation—1950 (Feb. 1951), the 1950 Housing Situation in Charts (June 1952), and Housing Statistics Handbook (1948).

the estimates include some allowance for dealing with so-called "substandard" units, and (2) that the asserted "need" for housing must be distinguished from effective "demand," since only the latter has any clear economic impact. Let us first look at the validity of the figures.

Projections of housing needs as well as "demand" invariably emphasize, first of all, the rate of family formation as a dominant influence in the housing-construction picture. This approach invariably leads to a study of the trend in married population and of the age composition of the population as a whole. From this type of data it would appear today that the outlook for new family and household formation in the next several years is less favorable than the recent past. The number of men and women who will arrive in the marriageable-age brackets during the next few years will decline as a reflection of the relatively low birth rate which began to show itself early in the 1930's and continued throughout the remainder of that decade. (See table 3, chart 2.) The declining proportion of single persons within the marriageable-age brackets likewise suggests a downward marriage trend. The percentage of all women 20 to 24 years old who were single declined from nearly 50 percent in 1940 to 38 percent in 1947 and 32 percent in 1951. At the same time, however, there are indications that the number of older persons will increase sharply and, therefore, maintain households much longer than in the past. The bulk of the increase in number of households during the 1950's will arise from this source. Not only will the older population groups increase but an increasing proportion of older persons has become financially able to maintain separate homes. The net effect of these opposing factors indicates that from the present rate of formation of new family households of about 1 million annually, the rate is likely to fall rather than rise over the remainder of the decade.

While analysis of the net rate of family formation thus suggests a possible softening in the housing demands of new homeseekers, an over-all approach to the problem on the basis of the expected increase in population seems rather more convincing under the specific conditions which we may expect to face in the immediate future. Whether the age structure of the population includes a high proportion of the extremely young, a high proportion of the extremely old, or a high proportion of those in the marriageable ages, the fact seems to be that, if our population projections are correct, we will have to provide shelter for some 24 million additional heads between 1950 and 1960.

TABLE 5.—*Population and number of persons per occupied dwelling unit or household, 1890–1950*

	Total population (in millions)	Occupied dwelling units or households (in millions)	Population per occupied unit or household		
			All areas	Nonfarm	Farm
1890	62.9	12.7	4.93	----------	----------
1900	76.0	16.0	4.69	----------	----------
1910	92.0	20.3	4.54	4.24	5.24
1920	105.7	24.4	4.34	4.21	4.68
1930	122.8	29.9	4.10	3.97	4.57
1940	131.7	34.9	3.78	3.66	4.25
1950	150.7	[1] 42.5	[1] 3.54	[1] 3.47	[1] 4.00

[1] Provisional.

Source: Housing and Home Finance Agency, Housing Statistics Handbook, table 74. Data for 1950 partially estimated from preliminary census tabulations.

For many decades the population per occupied dwelling unit or private household has, on the average, been declining (table 5). This has been true in both the nonfarm and farm areas. Expressing the trend in slightly different terms than the table, the Housing and Home Finance Agency, analyzing the 1950 housing census, pointed out that:

> The size of the average American nonfarm household continued its long-term downward trend. By 1950 the median-size household was 3.0 persons as compared to 3.2 in 1940. * * * The increasing population was "spreading out" into more and smaller household units, a trend that has been observed to go back at least as far as 1850.[7]

While the size of households is, of course, affected by size of families and by economic conditions as they affect "doubling-up" of families, etc., the broad sweep of the averages and the persistence of their decline for at least a century make it a statistical fact on which forecasters of housing requirements may safely place considerable reliance for the future. It would indeed be a surprising reversal of trend if the American population as a whole were suddenly to start placing housing lower in its competitive position with respect to the demand for other goods and services. Dividing the expected increase of 24 million in total population by, let us say, 3.5 per dwelling as an approximate number of persons per occupied unit, we arrive at a figure of almost 7 million new units as required to house and shelter the additional population. This would be true irrespective of the specific age or other demographic characteristics making up the population at any one time. Any amount of added housing less than that would mean that the standards of housing which Americans have already sought and attained for themselves would not be maintained.

Apart from the prospective needs arising from the increased population, there will be the continuing need for replacement and the maintenance of our existing stock of housing. Unfortunately, there is no simple way of estimating the amount of such replacement needs. First of all, it involves the question of housing "standards"—of suitability and adequacy—in respect to which personal judgments are highly subjective. On the subject of service life alone, the opinions of both experts and nonexperts vary widely. Some will argue that the expected service life of a house should be taken as low as 30 or 40 years, while others point to the continued service of houses that are already over 200 years old. Needless to say, actual service life depends upon many things—the type of building, the materials employed, the location, and the use. While the useful life of a building for tax-amortization purposes probably has little to do with its service life from the standpoint of shelter alone, the Bureau of Internal Revenue suggests that for apartments a total life of 50 years and for dwellings a total life of 60 years may be considered as reasonable for buildings of standard or sound construction. Another thing that makes it difficult to arrive at replacement needs on a simple mathematical basis is that the age distribution of the existing stock of housing is not uniform and the stock as a whole has been growing over the decades. If, recognizing the uncertainties, we accept 75 years as an approximate over-all service life for all kinds of housing units, replacement needs during the next few years would appear to be about 175,000 units per year. This estimate is founded upon census figures

[7] Division of Housing Research, Housing and Home Finance Agency, The Housing Situation, 1950, pp. 7–8.

which indicate about 1,500,000 standard units now in service will become 75 years old by 1960. While specific houses may certainly survive much longer, this figure gives us a rough measure of the equivalent number of houses, counting those of less sound construction and location which will pass out of use because of the ravages of time. In part these ravages are physical; in part they result from social changes. In this connection it is worth noting that in spite of the large number of new houses which have been added to our supply of housing in the years since the war, nearly half of the existing units in 1950 had been constructed before 1919, and hence were more than 30 years old. An additional 9 million will have reached that comparatively respectable age before 1960.

According to the Bureau of the Census, the effective supply of housing available as of April 1950 amounted to 45,875,000 units. Out of this number it is estimated that 1,500,000 units will have to be replaced during the decade. In addition, something like 700,000 will have to be provided to replace estimated losses through fire and other disaster and the removal of temporary war and veteran housing. Unless this is done, the actual housing supply and the condition of that supply will become progressively worse than it is today.

A third element to be considered in arriving at the housing needs involves the possible "upgrading" of so-called substandard dwellings.

Almost everyone will concede that there is a substantial amount of bad housing in the United States though opinions may differ as to the point at which the line should be drawn in specific cases. In the housing census of 1950 the Bureau did not undertake to determine directly whether houses were or were not "substandard." What it did seek to tell was the "condition" in which the buildings were in the spring of 1950 and whether or not they had running water and plumbing. One category in the condition data the Census characterized as "dilapidated," which was defined to mean that the property had been allowed to run down to the point where it should be torn down, extensively repaired, or rebuilt in order not to endanger the safety of the occupants. The Census reported 2,750,000 units in this condition, that is, a condition where, without repairs or replacements, the place would be dangerous to live in.

In addition to these dilapidated houses, the Census reported 3,543,000 urban dwelling units in good physicial condition but lacking private bath or inside toilet. Desirable as it might be, few persons would contend that all of these deficiencies must be corrected immediately or that any substantial portion of them can or will be corrected in any one year. Our purpose here is certainly not to overstate the size of the housing job for the future but to arrive at a supportable, conservative figure upon which those who venture capital in the housing field may rely. For purposes of conservative discussion it is submitted, therefore, that we might cut this figure in half to measure the needs between now and 1960. If only one-half of the unsafe, dilapidated units and one-half of the unsanitary, urban units are replaced in the next 8 years—or after the leveling-off of the military build-up makes materials and manpower more available—it will still call for construction of over 3 million units by 1960. Such a figure will clearly not please the ardent enthusiast for elimination forthwith of all substandard dwellings, but neither should it appear too idealistic to those who are more cautious in treating of the national interest in sanitation and safety.

Summarizing this section and pointing toward what seems to be a reasonable estimate of the housing job required over the remainder of the decade, we have:

Additional units needed by 1960 to keep up with the expanded population at the current level of population per occupied unit	6, 800, 000
Necessary to maintain the existing number of units assuming an average service life of 75 years per unit	1, 500, 000
Replacement of estimated losses through disaster of various forms and the removal of temporary housing	700, 000
Necessary to raise the general standard of housing by eliminating 50 percent of the housing either deemed dangerous in 1950 or located in urban areas but lacking private bath or inside flush toilet	3, 200, 000
Total	12, 200, 000
Deduct from this the number of units started in the 2 years following the census of Apr. 1, 1950	2, 500, 000
Estimated new construction and rehabilitation required by 1960, number of units	9, 700, 000

In other words, if we are to construct the nearly 10 million units needed in something like the 8 years between now and 1960, new housing starts must continue close to the average level of recent years—perhaps as high as the high year of 1950, almost certainly well above the years of building restrictions.

The figures thus arrived at are somewhat lower but substantially confirm the estimates of the housing authorities who approached the matter somewhat differently. Relying upon the experts in the Bureau of the Census, we are told that in 1960 over 41½ million nonfarm families will need separate housing and apartments. The following table summarizes the figures which the Housing and Home Finance Agency uses in arriving at an estimate of an average close to 1½ million nonfarm units per year for the decade as an appropriate measure of "how big is the housing job." [8]

Number of nonfarm families which will require housing in April 1960	41, 625, 000
Add allowance for 4 percent effective vacancy rate for rent or sale	1, 675, 000
Total effective supply of dwelling units needed in 1960	43, 300, 000
Subtract estimated effective supply April 1950	37, 314, 000
Net additional number of units which need to be added to the supply by 1960 to keep up with rate of family formation	5, 986, 000
Add total replacement and rehabilitation need	8, 400, 000
Total nonfarm new construction, conversion, and rehabilitation need	14, 386, 000

As before, we must allow for the building which has been started in the last 2 years—about 2,500,000 units. This alternative approach to estimating requirements suggests that as much as 1½ million nonfarm units may be needed for each of the next 8 years. To this some allowance must be added for farm dwellings. Whether we take the minimum of 1,200,000 indicated by one analysis or the higher estimate of over 1,500,000 arrived at alternatively, the housing job will obviously be a big one.

So much for the figures indicating that housing requirements for the 8 years will on the average considerably exceed the number actually built in the 5 years 1947–51. The prospect is that the annual

[8] Division of Housing Research, Housing and Home Finance Agency, How Big Is the Housing Job? p. 13 (October 1951).

average for those years will need to be surpassed by some 50 percent in order to provide a housing supply very little better than it is today.

In addition to new housing starts and the correction of substandard conditions generally, there is almost certain to be considerable construction activity by way of building additions and enlarging existing houses. This is particularly likely to happen in the case of some of the newer postwar housing built to meet the immediate needs of returning veterans and their new families.

We turn now to the argument that no matter how effective the demonstration of need may be, it must be distinguished from housing demand backed up, that is, by purchasing power and willingness to invest which are necessary to translate that need into actual building starts. We shall deal in a later section with the general role of what business and Government may do in helping to provide the purchasing power necessary to convert the needs for housing, durables, and public facilities into an employment-supporting demand.

It is well to emphasize here, however, that what the demand actually turns out to be will depend in a very large part on the expectations and forecasts which builders and owners make in advance as to the probable demand. To a considerable extent a confident forecast of a substantial and rising housing need, founded upon an analysis of the demographic factors and resting upon minimum standards of adequacy such as we have made in the preceding paragraphs, can go a long way in itself toward assuring the economic levels necessary to bring forth the effective demand. It seems safe to say, moreover, that considering the competitive position in which the American family today places housing in relationship to other goods and services, the American public will resist any general lowering of housing standards below present levels. Given the encouragement of satisfactory cost relationships and the availability of private savings, the construction industry has demonstrated its willingness and capacity to step in and meet these needs. It is not unrealistic, however, to suppose that if a lowering of housing standards can be avoided only by the continuance or liberalizing of Government aids in the forms of guaranties and loans, that we shall probably have guaranties and loans. In any case, activity for the private home-construction industry is the certain result. It is hardly necessary to point out that "the commencement of house building precipitates an automatic flow of orders for paint, cement, steel, brick, stone, gravel, lumber, roofing, plumbing fixtures, paper, chemicals, coal, metals, and a multitude of other products."[9] This says nothing of the obviously substantial role which the transportation and utility systems of the country will have to supply to the building industry.

[9] Abrams, Charles, the Future of Housing (Harper & Bros., 1946), p. 57.

IV. Private Investment in Other Than Residential Construction[10]

While added housing is one of the most apparent needs growing out of the long-run growth of the country, and especially out of the extraordinary expansion of population expected in the next decade, opportunities for investment in factories, machines, and public services will be affected by much the same forces. In this section we consider the situation respecting investment in buildings and machinery for manufacturers generally and for a few selected industries such as electric power, telephones, and farm tractors as an example of demands in the field of agriculture. In some of these fields the possibilities of quantitatively estimating future demand are less satisfactory than in the case of housing where one can point to the need in terms of a specific number of units. The difficulties of measurement and the obviously heterogeneous character of the nonhousing items will not, however, make the requirements for large private outlays on such equipment and new construction requirements any less demanding upon the economy's resources when and as defense expenditures can be curtailed.

Business investment in the manufacturing industries

It appears that when 1952 investment expenditures are completed, manufacturers in the United States will have added in the neighborhood of 50 percent to their manufacturing capacity since the end of World War II. That, at least, is what available data assembled by the Department of Commerce seem to indicate. At the end of the war in 1946 the undepreciated book value of all capital assets owned by manufacturing corporations is estimated at about $140 billion. In comparison, about $124 billion were expended in the period from 1946 through 1952 on new fixed capital investments, though the figures are not wholly comparable since the 1946 book value reflected for the most part original cost, on the average substantially lower than postwar costs.

However measured, the expansion of manufacturing capacity in the postwar period has been impressive. So unprecedented has the dollar volume of new investment been that it now raises in the minds of many the fear that some overexpansion of productive capacity may have occurred. In this respect the situation expected to face us after the peak in defense build-up has passed is in striking contrast with the conditions anticipated—and realized—at the end of World War II.

All during World War II economists and businessmen were apprehensive that when the war was over we might find ourselves with excess manpower and with a serious unemployment problem arising

[10] The Department of Commerce, Office of Business Economics, at our request has supplied information for the tables and charts in this chapter which deal with private outlays for producers' durable equipment and new construction, telephones, and tractors. See also articles in the Survey of Current Business (April 1952), Expansion of Capacity in the Postwar Period, and (August 1952) Capital Expenditures by Nonmanufacturing Industries.

Data on electric-generating capacity and trends, Federal Power Commission, Thirty-first Annual Report (1951), H. Doc. 287, 82d Cong., 2d sess.

Data on agricultural requirements, U. S. Department of Agriculture, Production and Marketing Administration, The 5th Plate (December 1951).

from the demobilization of the millions of men and women then in the armed services. Today as we look forward to the time when defense expenditures can be reduced, there is little probability that demobilization of manpower will present any serious problem of reabsorbing substantial numbers into private employment. The apprehension which some today feel is, therefore, that we may, instead of an unemployment problem, have a problem of excess manufacturing capacity; that fixed capital investment may have been so expanded that the problem will be to keep existing plants busy. In support of this it is pointed out, moreover, that today there is no such backlog of deferred growth requirements for fixed capital investment with which we must catch up as there was in 1946 at the end of 5 years of all-out war.

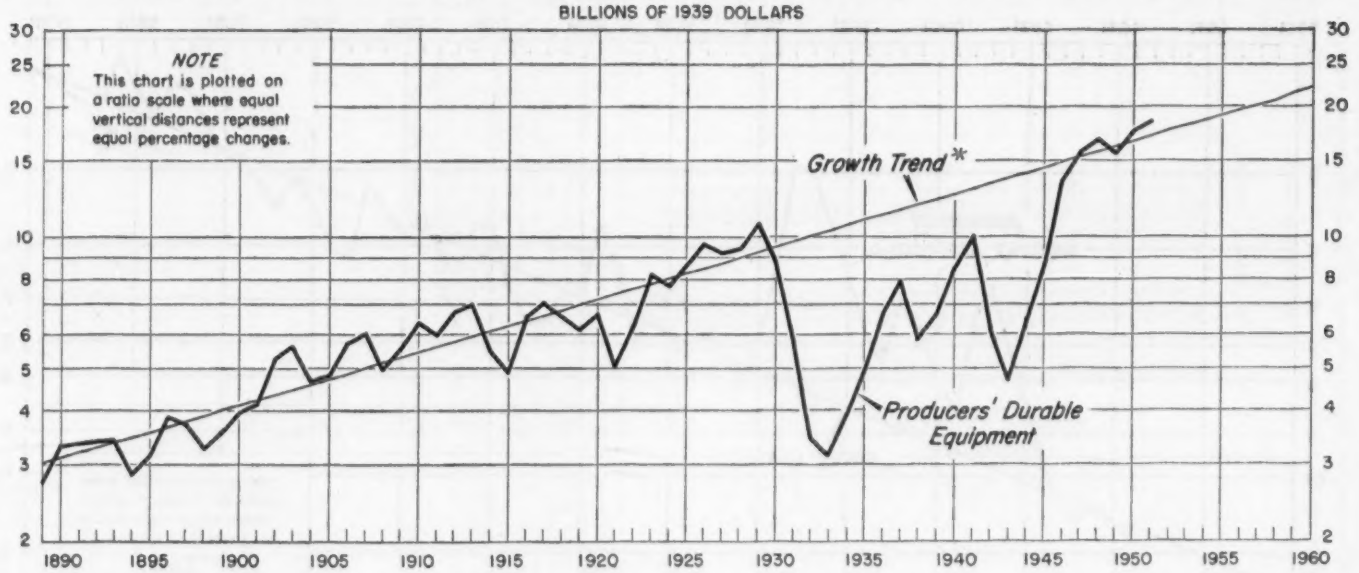
This fear that the rate of fixed capital investment may turn down in the future is, of course, encouraged by the common knowledge that private investment has in the past proven to be not only one of the factors having most direct effect upon the economic health of the Nation, but one of the most volatile factors in our economy. We know, for example, that gross private domestic investment, which includes outlays for new construction, for producers' durable equipment, and for additions to inventory amounted in 1929 to $15.8 billion or 15.2 percent of the gross national product. From that level it sank to only $0.9 billion in 1932, rose to $11.4 billion in 1938, and with various ups and downs went on to reach an annual rate of $65 billion in the second quarter of 1951. From there it has fallen to an annual rate of $48 billion—still 14 percent of gross national product—in the second quarter of 1952.

With the knowledge of this enormous historical variation, one dares not base predictions as to the course of private investment in the future upon historical evidence taken alone. No one would go so far, that is, as to suggest that any extrapolation or projection on the trend of such variable economic data can give any definitive basis for forecasting what will happen tomorrow or next year. It does seem worth while, however, in view of the expected population growth, which we have already discussed, and the recognized opportunity for the almost unlimited installation of cost-reducing equipment, to take a look at the longer-run trends in some of the principal capital-using industries. The projection of some of these curves should at least help us adjust our sights to what future potentials for investment will be if the basic forces which have heretofore made for national growth continue to be operative as we expect them to be.

Charts 3 and 4, based upon the accompanying tables (tables 6 and 7, respectively), show trends since 1889 in two statistical series measuring aggregate outlays in the field of private investment. One of the charts presents data on private outlays for producers' durable equipment and new construction, other than residential, adjusted so as to reflect dollars of a uniform purchasing power. The second chart presents a similar series covering outlays for producers' durable equipment only.

CHART 8

GROWTH OF PRIVATE OUTLAYS FOR PRODUCERS' DURABLE EQUIPMENT AND NEW CONSTRUCTION (Other than residential), In Constant (1939) Dollars, 1889-1960

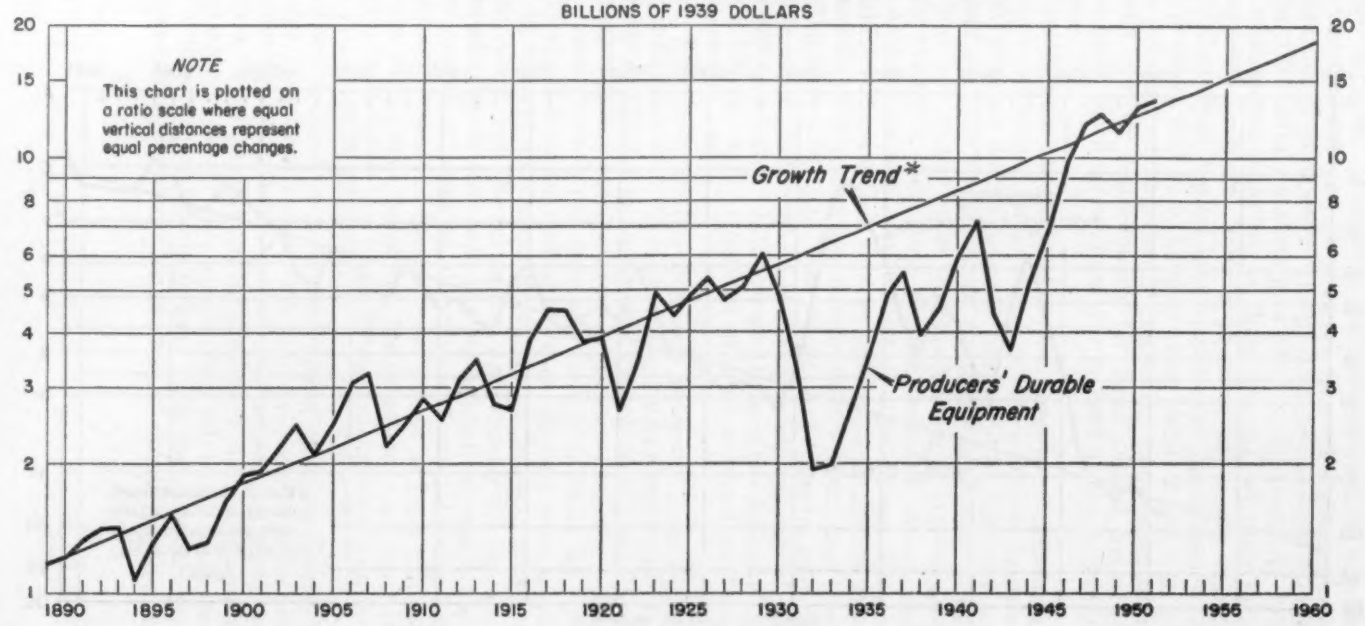


* Trend fitted to data for 1889-1930

SOURCE: Office of Business Economics, U.S. Department of Commerce

CHART 4

GROWTH OF PRIVATE OUTLAYS FOR PRODUCERS' DURABLE EQUIPMENT
In Constant (1939) Dollars, 1889–1960



* Trend fitted to data for 1889–1930

SOURCE: Office of Business Economics, U. S. Department of Commerce

TABLE 6.—*Private outlays for producers' durable equipment and new construction (other than residential) in constant (1939) dollars, 1889–1960*

Year	Millions of 1939 dollars		Year	Millions of 1939 dollars	
	Actual [1]	Computed [2]		Actual [1]	Computed [2]
1889	2,726	3,027	1925	8,621	8,287
1890	3,310	3,113	1926	9,615	8,521
1891	3,349	3,201	1927	9,174	8,764
1892	3,403	3,293	1928	9,434	9,012
1893	3,415	3,386	1929	10,729	9,266
1894	2,870	3,481	1930	8,816	9,530
1895	3,139	3,580	1931	5,793	9,800
1896	3,874	3,681	1932	3,455	10,078
1897	3,731	3,786	1933	3,136	10,364
1898	3,256	3,893	1934	3,927	10,658
1899	3,561	4,004	1935	4,957	10,961
1900	3,951	4,117	1936	6,673	11,272
1901	4,156	4,235	1937	7,942	11,592
1902	5,270	4,354	1938	5,881	11,921
1903	5,624	4,478	1939	6,654	12,258
1904	4,692	4,605	1940	8,414	12,606
1905	4,817	4,736	1941	10,023	12,964
1906	5,681	4,870	1942	6,070	13,332
1907	6,037	5,008	1943	4,716	13,709
1908	4,976	5,150	1944	6,447	14,099
1909	5,534	5,297	1945	8,499	14,499
1910	6,351	5,446	1946	13,552	14,909
1911	5,980	5,602	1947	15,674	15,333
1912	6,789	5,759	1948	16,830	15,768
1913	7,012	5,924	1949	15,586	16,215
1914	5,473	6,091	1950	17,595	16,675
1915	4,880	6,265	1951	18,495	17,148
1916	6,525	6,442	1952	----------	17,635
1917	7,088	6,625	1953	----------	18,135
1918	6,617	6,813	1954	----------	18,649
1919	6,175	7,006	1955	----------	19,178
1920	6,695	7,204	1956	----------	19,722
1921	5,031	7,409	1957	----------	20,282
1922	6,280	7,619	1958	----------	20,857
1923	8,199	7,836	1959	----------	21,449
1924	7,771	8,058	1960	----------	22,057

[1] Producers' durable-equipment expenditures in 1939 dollars, 1929–51, estimated by the Office of Business Economics. This series is spliced in 1929 to William H. Shaw's estimates of domestic consumption of producers' durable equipment, plus 30 percent of his estimates for passenger motor vehicles, both converted to 1939 dollars, from data contained in Value of Commodity Output Since 1869, National Bureau of Economic Research; estimated Government war purchases 1917–21 were excluded. New construction expenditures, other than residential, were based on estimates of the Building Materials Division of the National Production Authority, U. S. Department of Commerce, contained in the May 1952 Statistical Supplement to the Construction and Building Materials Report. Oil- and gas-well drilling expenditures are included. Adjustment for price changes, and estimates prior to 1915, were made by the Office of Business Economics.

[2] Based on following regression equation for period 1889–1930: Log real plant and equipment outlays= 3.730+0.006t (straight-line time trend); r=0.935.

Source: Office of Business Economics, U. S. Department of Commerce.

TABLE 7.—*Private outlays for producers' durable equipment in constant (1939) dollars, 1889–1960*

Year	Millions of 1939 dollars		Year	Millions of 1939 dollars	
	Actual [1]	Computed [2]		Actual [1]	Computed [2]
1889	1,177	1,170	1925	4,852	4,745
1890	1,212	1,217	1926	5,322	4,934
1891	1,329	1,266	1927	4,764	5,130
1892	1,411	1,316	1928	5,087	5,332
1893	1,410	1,368	1929	6,071	5,544
1894	1,075	1,422	1930	4,829	5,763
1895	1,301	1,479	1931	3,260	5,992
1896	1,516	1,537	1932	1,937	6,230
1897	1,266	1,598	1933	1,985	6,477
1898	1,310	1,662	1934	2,674	6,733
1899	1,614	1,727	1935	3,550	7,000
1900	1,861	1,796	1936	4,805	7,278
1901	1,912	1,866	1937	5,500	7,567
1902	2,182	1,941	1938	3,940	7,865
1903	2,455	2,018	1939	4,577	8,179
1904	2,106	2,097	1940	5,981	8,502
1905	2,466	2,181	1941	7,180	8,839
1906	3,050	2,268	1942	4,412	9,189
1907	3,215	2,357	1943	3,648	9,554
1908	2,206	2,451	1944	5,117	9,933
1909	2,451	2,548	1945	6,668	10,327
1910	2,818	2,649	1946	9,873	10,736
1911	2,519	2,754	1947	11,814	11,162
1912	3,117	2,863	1948	12,605	11,604
1913	3,445	2,977	1949	11,435	12,064
1914	2,756	3,094	1950	13,143	12,542
1915	2,656	3,218	1951	13,569	13,039
1916	3,832	3,344	1952	----------	13,557
1917	4,507	3,477	1953	----------	14,094
1918	4,483	3,615	1954	----------	14,653
1919	3,795	3,758	1955	----------	15,234
1920	3,897	3,907	1956	----------	15,837
1921	2,648	4,062	1957	----------	16,465
1922	3,435	4,223	1958	----------	17,118
1923	4,933	4,390	1959	----------	17,797
1924	4,392	4,564	1960	----------	18,502

[1] Producers' durable-equipment expenditures in 1939 dollars, 1929–51, estimated by the Office of Business Economics. This series is spliced in 1929 to William H. Shaw's estimates of domestic consumption of producers; durable equipment, plus 30 percent of his estimates for passenger motor vehicles, both converted to 1939 dollars, from data contained in Value of Commodity Output Since 1869, National Bureau of Economic Research; estimated Government war purchases 1917–21 were excluded.

[2] Based on following regression equation for period 1889–1930: Log real producers' durable-equipment outlays=3.415+0.008t (straight-line time trend); r=0.950.

Source: Office of Business Economics, U. S. Department of Commerce.

One cannot look at the charts without observing the very considerable fluctuation from year to year which has characterized private investment, as we have already noticed. The charts and tables show also the trend values for the respective series through the year 1960 based upon simple extrapolation. Such trend values take no account, it must be emphasized, of possible year-to-year fluctuations in the general level of business activity which would result when and as they took place in deviations from the smooth theoretical trend line. If one were able to clear one's mind sufficiently to put our thinking back at some historical point along the plotted line it would obviously have been difficult to have predicted the direction of the line a short time hence.

With the significance of these reservations clearly in mind, it seems safe to observe that the relatively large investment in manufactures since the war has not only done nothing to offset the deficiencies of the depression and war periods, but has apparently been

little more than what might normally have been expected judged by the pattern of the preceding half century. That which appears from the year-to-year statistics to have been "abnormally" high years for private investment from 1946 to 1952 turn out to have done little more than bring us up to levels which might have been expected under a rate of progress uninterrupted by depression and wartime restrictions. In other words, private outlays on producers' durable equipment, including new construction other than residential, actually made in 1951 were only a trifle above what we might have expected in any case by 1953 on a simple straight-line projection of the pre-depression historical trend.

While contemporary business activity and the investment decisions of businessmen will determine the amount of actual outlays made in the years ahead, the charts, with all of the necessary qualifications, give little support to the view that our growth requirements for fixed capital have been significantly outrun to date. If the charts and computed projections did nothing but dispel the idea that the post-war "boom" has carried us way ahead of ourselves, they would perhaps have made a substantial contribution toward making the projections themselves come true. If one is willing to accept as evidence the long-run growth-trend curves alone, it appears that businessmen might safely expect to continue current rates of private plant and equipment outlays and even increase them substantially over the years without serious risks of overexpansion. If the risk is small the fears which might serve to frustrate the natural upward course of investment should be easily overcome.

That the rate of private outlay for plant and equipment purposes may vary from year to year in the future, as it has in the past, no one will doubt; nor can we predict with confidence what those levels may be at some particular point in time. But it does seem clear, however, that any thoughtful perspective of the trend founded upon the basic assumption of a continually growing country gives little cause for concern about an alleged overexpansion of manufacturing capacity today. If there is any such overcapacity the probabilities are that the country will have grown up to the needs before the "excesses" ever get to be an economic problem.

Business investment in the nonmanufacturing industries

The backlog of capital-goods demand at the end of World War II and the heavy capital-goods investment outlays since the war have, of course, not been limited to the manufacturing industries. Industries such as public utilities, communication, and trade have undergone similar large expansion programs in the face of the large postwar demand by both consumers and producers. We have previously pointed out that the investment expenditures of manufacturers since the war have added in the neighborhood of 50 percent to over all manufacturing capacity.

Whereas total gross capital assets (excluding land) of all nonmanufacturing corporations totaled about $86 billion at the end of 1945, these companies in the succeeding 6 years 1946–51 made new capital outlays of almost $54 billion. After making crude price adjustments to place both figures on an equal cost basis, it is estimated

that approximately 30 percent of the gross stock of nonmanufacturing fixed capital at the end of 1951 was less than 6 years old. It is difficult to define what this has meant in terms of capacity in some of the nonmanufacturing industries. Nonmanufacturing gross fixed assets at the end of 1952 are, however, expected to be 25 percent higher in real terms than at the end of 1945.

While the expansion increases have not been uniform among the nonmanufacturing industries, electric generating capacity is one area in which increases are generally recognized to have been substantial. What evidence do we have of overcapacity in this industry? In the period prior to World War II it was generally accepted that reserve requirements in electric generating capacity of some 20 percent above peak demands were high but not particularly out of line or excessive. During the war this industry, like many others, experienced not only an unprecedented expansion in demand but was prevented by war restrictions from plant expansion commensurate with the increased needs. In December 1947 and December 1948 reserve capacity had been driven down to only about 2 percent. In response to the recognized danger of such low limits, the industry undertook expansion programs immediately that materials were available in the postwar period. (See chart 5.) Tremendous expenditures were made during these years in an effort to build up reserve capacity to more healthy levels. With the beginning of hostilities in Korea, the hoped-for rate of build-up was again temporarily interrupted and the available reserve capacity decreased from 9 percent in 1949 to 7 percent in December 1950.

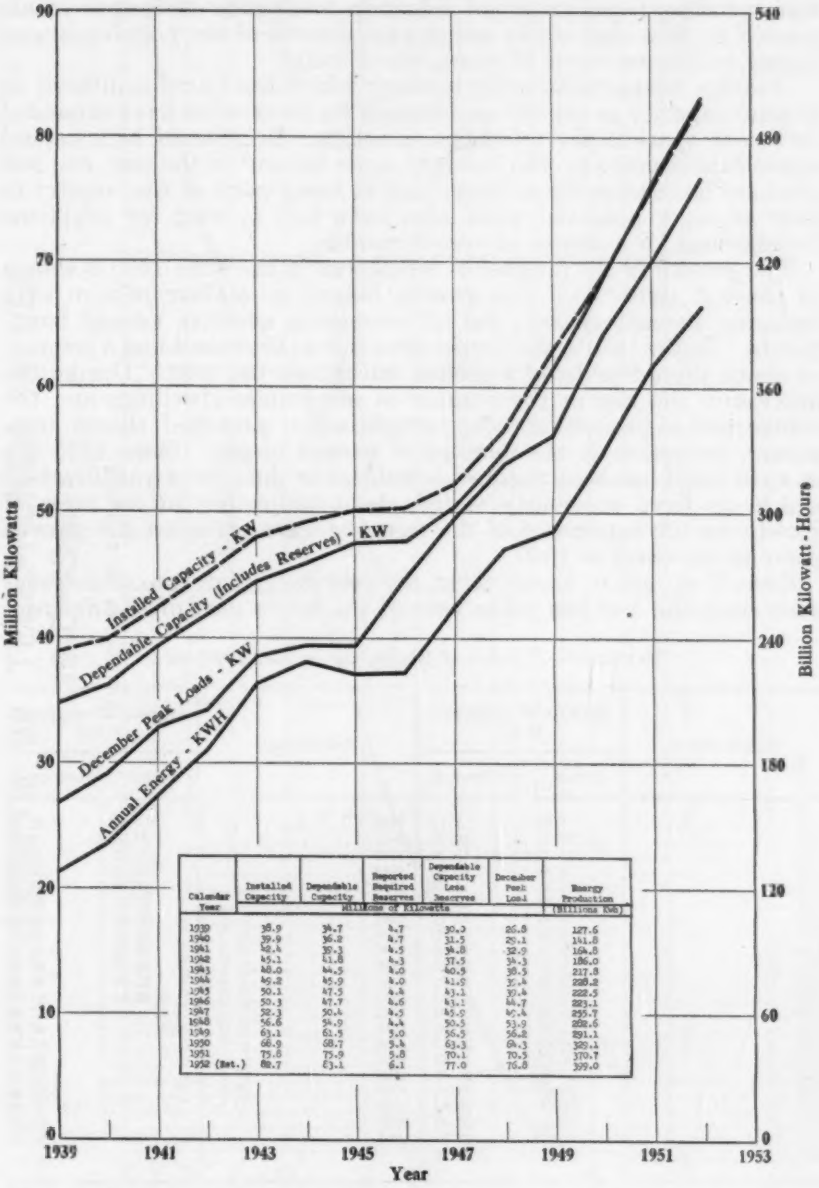
Based on electric-utility estimates of future loads and scheduled new capacity additions, it is hoped that reserve margins by December 1952, 1953, and 1954 may be restored to levels of approximately 9, 12, and 9 percent, respectively. If stream-flow conditions at hydroelectric plants are satisfactory and planned installations are completed, the actual reserve margins may be somewhat greater. All of these estimates are based on the assumption that shortages of critical materials will not delay installations of scheduled new capacity, amounting to nearly 10 million kilowatts each in 1952 and in 1953. Beyond 1953 the now scheduled new capacity drops off considerably.

While these records and plans appeared adequate if not ambitious, it has been a characteristic of the industry in recent years for peak-load demands continually to press upon capacity figures as they have both rushed forward and upward. Chart 5 is worthy of study in that connection. Both before the war and particularly since the war, energy production and December peak load, as indicated by the chart and accompanying table, have risen by leaps and bounds. In 1951, peak demand was 147 percent greater than in 1940, and 83 percent greater than the peak attained during World War II. Peak loads of electric utilities are currently expected to exceed 90 million kilowatts in 1954 and annual energy production is expected to surpass the 480 billion kilowatt-hour level by that year, according to estimates reported by the Federal Power Commission. As a minor commentary on the validity of forecasts of electric-energy consumption, it may be well to remember that peak loads in December 1951 turned out to be 6 million kilowatts greater than had been estimated 1 year earlier—and this was true in an industry notoriously capable and alert in planning for public needs well in advance.

CHART 5

POWER SUPPLY AND REQUIREMENTS OF ELECTRIC UTILITIES IN THE UNITED STATES

1939 - 1952



Calendar Year	Installed Capacity	Dependable Capacity	Reported Required Reserves	Dependable Capacity Less Reserves	December Peak Load	Energy Production (Billions Kwh)
	Millions of Kilowatts					
1939	38.9	34.7	4.7	30.0	26.8	127.6
1940	39.9	36.2	4.7	31.5	29.1	141.8
1941	42.4	39.3	4.5	34.8	32.9	164.8
1942	45.1	41.8	4.3	37.5	34.3	186.0
1943	48.0	44.5	4.0	40.5	38.5	217.8
1944	49.2	45.9	4.0	41.9	37.4	228.2
1945	50.1	47.5	4.4	43.1	39.4	222.5
1946	50.3	47.7	4.6	43.1	44.7	223.1
1947	52.3	50.4	4.5	45.9	47.4	255.7
1948	56.6	54.9	4.4	50.5	53.9	282.6
1949	63.1	61.5	5.0	56.5	56.2	291.1
1950	68.9	68.7	5.4	63.3	64.3	328.4
1951	75.8	75.9	5.8	70.1	70.5	370.7
1952 (Est.)	82.7	83.1	6.1	77.0	76.8	399.0

Source: Federal Power Commission annual report.

Although presently scheduled plans look to some leveling off of the rate of new capacity installation some months hence, it is not easy to visualize the continually rising lines shown in the chart as undergoing more than a minor leveling off. This is especially true in the face of the expanding requirements of industries and residential requirements needed to take care of the anticipated growth of the population and hoped-for improvement in standards of living.

Another nonmanufacturing industry which has found it difficult to expand capacity as rapidly as demands for its services have expanded in recent years is the telephone industry. In spite of high capital expenditures made by the industry since the end of the war, one still does not have to go far or listen long in many parts of the country to hear of eager potential users who have had to wait for telephone installations for a month or even 6 months.

The growth in the number of telephones in use since 1910 is shown in chart 6 (table 8). The growth follows a familiar pattern of a declining percentage rate but of increasing absolute annual increments. In the 1920's, the secular growth was between 4 and 5 percent, or about three-fourths of a million telephones per year. During the depression the rise in the number of unoccupied dwellings and the contraction in business activity brought about a marked, though temporary, reduction in the number of phones in use. Since 1935 the upward trend has been resumed. Subject to the sort of qualifications which we have previously stated about projecting future rates of growth on the experience of the past, we have extended the growth curve in the chart to 1960.

Even if we are to assume that the relatively high rate of installations since the war has taken care of the larger part of the deferred

TABLE 8.—*Number of telephones in use, 1910–60*

End of year—	Millions of telephones in use		End of year—	Millions of telephones in use	
	Actual [1]	Computed [2]		Actual [1]	Computed [2]
1910	7.64	7.72	1940	21.93	31.30
1915	10.52	10.26	1941	23.52	32.48
1920	13.33	13.29	1942	24.92	33.68
1921	13.88	13.96	1943	26.38	34.93
1922	14.35	14.66	1944	26.86	36.20
1923	15.37	15.37	1945	27.87	37.48
1924	16.07	16.11	1946	31.61	38.82
1925	16.94	16.87	1947	34.87	40.17
1926	17.75	17.65	1948	38.20	41.58
1927	18.52	18.46	1949	40.71	42.99
1928	19.34	19.30	1950	43.00	44.43
1929	20.07	20.14	1951	45.64	45.92
1930	20.20	21.03	1952		47.45
1931	19.69	21.95	1953		49.00
1932	17.42	22.87	1954		50.58
1933	16.71	23.83	1955		52.19
1934	16.87	24.80	1956		53.87
1935	17.42	25.83	1957		55.55
1936	18.43	26.86	1958		57.25
1937	19.45	27.94	1959		59.00
1938	19.95	29.02	1960		60.81
1939	20.83	30.14			

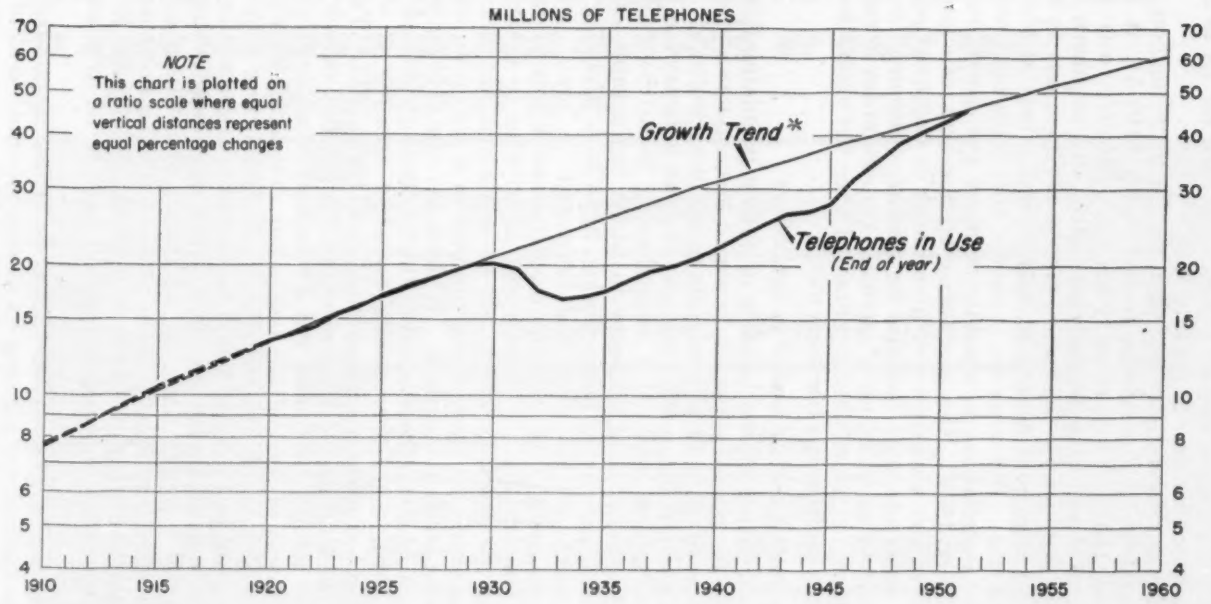
[1] Source: American Telephone & Telegraph Co., except data for 1922, 1927, 1932, and 1937 which are from the Bureau of the Census, U. S. Department of Commerce.

[2] Based on following regression equation: log telephones = −4.17+2.98 log time (1860=0); r=0.999. Trend fitted to data for period 1910–29.

Source: Office of Business Economics, U. S. Department of Commerce.

CHART 6

GROWTH OF TELEPHONES IN USE 1910–1960



* Trend fitted to data for 1910–1929

SOURCE: Office of Business Economics, U. S. Department of Commerce

growth which existed when wartime restrictions were first removed, the chart nevertheless suggests that the possibilities of further secular growth are still excellent. Simple mathematical projections based on the 1910–29 experience suggest a minimum need for 1¾ to 2 million new phones per year during the late 1950's.

While this is substantially less than the 2¼ to 2½ million actually installed each year during the record years 1949–51, it must be remembered that during these years the industry was straining itself to catch up on a long-accumulated and stubborn backlog. Prospective demand for the future may easily turn out to be somewhat smaller than that needed to sustain operations at this abnormally high rate. But even so, it should still maintain levels which will call for installations in absolute numbers per annum more than double 1929 or 1939. The chart showing numbers, of course, takes no account of the possibilities of investment in improved equipment providing more adequate facilities for existing customers, nor in the improvement or speeding up of service. Opportunities in such directions are likely to prove almost unlimited once the urgent backlog of new service requirements has been met.

Investment outlays will be needed in agriculture

No consideration of the impacts of future population growth on the demand for capital expenditure would be complete without some consideration of what these prospects mean to agriculture. Agricultural production is likely to be thought of as an industry less dynamic than manufactures and other capital-using industries. As nearly everyone knows, it is an industry in which the number of persons employed and number of hours worked have been declining steadily in recent years, with the trend still downward.

The Department of Agriculture recently issued a report graphically entitled "The 5th Plate." The report undertakes to dramatize the vastness of the demands which will be made over the next several decades for expanded agricultural production if we do no more than retain present levels of nutrition. While in the case of other industries we have limited our consideration of the future to the period between now and 1960, the Department's pamphlet treating of the same growth trend has projected its calculations as far as 1975. Taking the Bureau of the Census medium projection of population (which we have in an earlier section concluded was a reasonably conservative figure), the Department of Agriculture points out that agriculture's job for the future will be to fill "the 5th plate." For every four people sitting down to a meal in 1950, there will be another person at the table in 1975. The accompanying pictorial chart graphically summarizes what this will mean in terms of additional production—additional production merely to supply more people with the same per capita food consumption which we have today. Any allowance for needed or desirable dietary improvement would have to be over and above that.

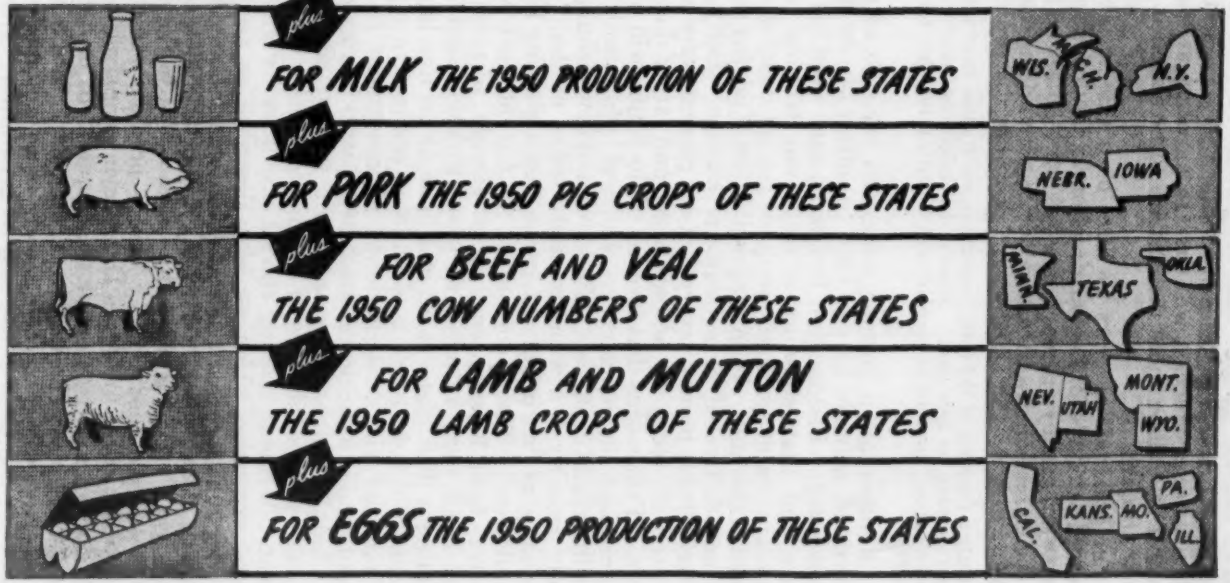
If all of us are to eat as well in 1975 as we are eating now, agriculture will have to increase our pig crop by an amount equal to all of the pigs produced in Iowa and Nebraska in 1950. If we are to maintain our per capita beef consumption we will have to add to our national production an amount equivalent to the 1950 production of Texas, Oklahoma, and Minnesota combined. If we are to maintain our

CHART 7

1975 MILK, MEAT, AND EGG REQUIREMENTS SUMMARIZED

to supply each person as much as in 1950 we would need:

... ALL WE PRODUCED IN 1950



Source: U. S. Department of Agriculture publication, The 5th Plate.

lamb and mutton consumption, we will have to increase production by an amount greater than the combined 1950 lamb production of our great producing States of Montana, Wyoming, Utah, and Nevada. All lines of production will have to move up at least one-fifth above 1950 if 38 million more mouths are to be supplied in 1975 as well as they now are.

For hundreds of years we have been able to take care of such increased demands for food arising from expanding population by moving westward and by opening up new land. This is no longer possible nor is the increasing of agricultural yields per unit the simple process that it once was. As the Department describes the problem of the future:

> Only a fraction of the total increase in production that will be needed can come from opening up new land. Most of the additional production must come from "building up" present acres—through a vertical increase rather than a horizontal increase.

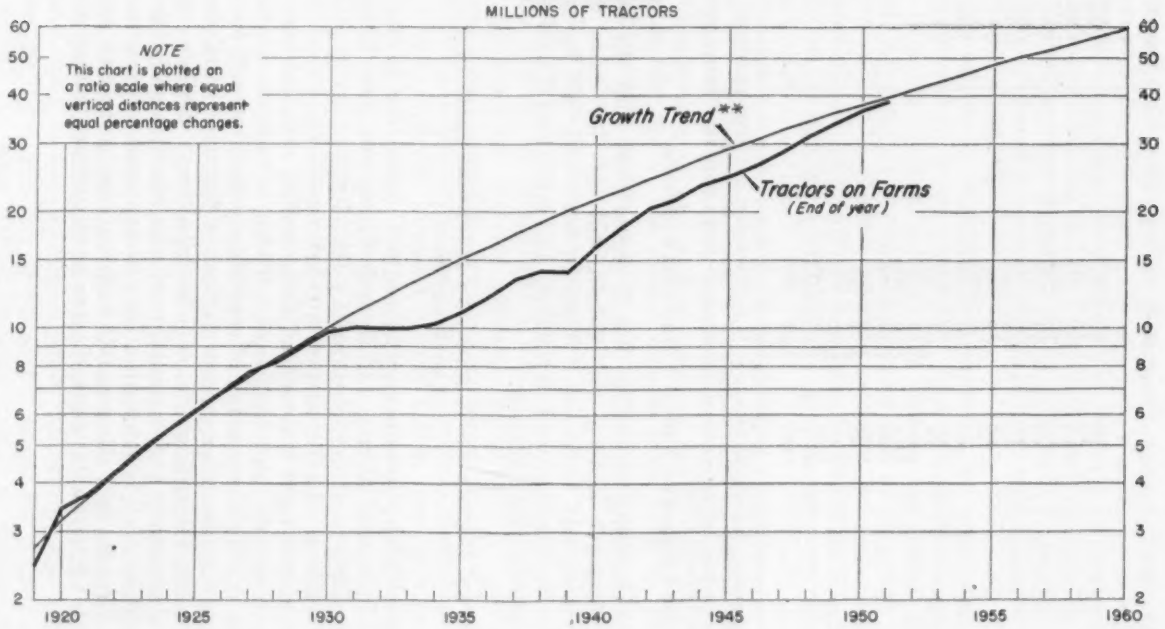
In conservation farming, improved varieties of plants, and better breeds of animals lie our only opportunities for keeping pace with population. Insecticides, fertilizers, and weed killers, wider acceptance and understanding of improved farming practices, and the substitution of synthetic products can all make substantial contributions to this end. With the possibilities of adding substantial amounts to our cultivated or agricultural acreage strictly limited, the only alternative is to make every 5 of our present acres produce as much as 6 acres do today by adding larger and larger dosages of capital per acre. That means that farming of the future will require large capital investment in machinery, electrical equipment, livestock, seeds, fertilizer, and chemicals. Research and new techniques will be needed. Only recently a newspaper study spoke of the "soil conditioning" industry as "an infant enterprise that's growing like a well-fertilized sunflower." The opportunities for any product whereby "yields of carrots have been fattened by 20 percent, of potatoes by 45 percent, and sweet corn by over 100 percent" are almost unlimited contemplating a fifth plate to fill and little or no free land. Only by such means will it be possible to build up productive capacity sufficiently. What this will mean in terms of investment in chemical-fertilizer plants and in agricultural-machinery plants it is impossible to estimate.

Chart 8 which covers only farm tractors shows something of the growth and possibilities of expanding capital items in farm management. Without making special provision for any of the unusually rapid expansion which we have described as needed in agricultural production, the chart indicates that the minimum historical rate of growth alone will call for nearly a quarter million tractors additional each year. That is more than were added in the three prewar years 1938–40 combined. If we are to produce additional foods in the quantities called for in the Department's analysis of future needs, the addition of new tractors or their equivalent in motorized equipment may well exceed this historical rate by a substantial percentage.

We have taken tractors merely as an example of the potential investment demands in the field of agriculture. Other known and yet unknown types of farm machinery will be subject to the same demand pressures. We cannot be certain just where or how the application of research and of conservation knowledge may contribute to meet-

CHART 8

GROWTH OF TRACTORS ON FARMS*
1919–1960



* Excluding garden tractors

** Trend fitted to data for 1919-1930

SOURCE: Office of Business Economics, U.S. Department of Commerce

TABLE 9.—*Number of tractors on farms (excluding garden tractors), 1919–60*

End of year—	Thousands of tractors on farms		End of year	Thousands of tractors on farms	
	Actual [1]	Computed [2]		Actual [1]	Computed [2]
1919	246	273	1940	1,633	2,151
1920	343	319	1941	1,835	2,291
1921	372	369	1942	2,044	2,437
1922	427	422	1943	2,154	2,588
1923	494	481	1944	2,354	2,745
1924	546	543	1945	2,485	2,905
1925	616	609	1946	2,632	3,071
1926	686	680	1947	2,836	3,242
1927	773	755	1948	3,130	3,420
1928	816	835	1949	3,403	3,601
1929	906	919	1950	3,686	3,787
1930	981	1,007	1951	3,870	3,981
1931	1,005	1,101	1952		4,178
1932	1,001	1,199	1953		4,379
1933	998	1,301	1954		4,588
1934	1,028	1,408	1955		4,803
1935	1,103	1,519	1956		5,021
1936	1,205	1,636	1957		5,246
1937	1,340	1,759	1958		5,476
1938	1,411	1,883	1959		5,712
1939	1,407	2,015	1960		5,954

[1] Source: Bureau of Agricultural Economics, U. S. Department of Agriculture, adjusted to eliminate garden tractors by Office of Business Economics, U. S. Department of Commerce.

[2] Based on following regression equation: Log tractors = −.146+2.253 log time (1905=0); r=0.995. Trend fitted to data for period 1919–30

Source: Office of Business Economics, U. S. Department of Commerce.

ing these changing conditions but it seems clear that the movement toward intensive acreage cultivation will call for more and more modern tools and fertilizers. That in turn will call for more and more city workers engaged in building and operating plants producing for the agricultural industry.

V. The Increased Needs for Expenditures on Public Construction

Along with the private-capital outlays called for in the fields of housing, industrial plants, and in agricultural and land improvement will go a rising need for substantial public investment in community-service facilities. In this section we shall consider the needs in respect to some of the more obvious of these public requirements—school-housing, hospitals, and highways. These, of course, are not all of the areas in which expansion of community facilities will be required. As population increases, more and more facilities supplying water, sewage, urban recreation, etc., will be called for. While we shall treat only of elementary and secondary schools, the demands for facilities at the higher levels of education may be expected to grow proportionately. Airports and other public buildings are certain to come in for a share in larger public expenditures to meet the growing needs.

Schoolhousing shortages accumulated and in prospect [12]

One area of construction activity which a decline in defense requirements will unleash grows in large part out of our expanding population and involves our elementary and secondary schoolhousing needs. In the case of residential construction we have taken the average number of persons per occupied unit as a rough measure of the size of the problem, recognizing that changes in the rate of births or family formation constitute an ever-present potential tending to support building activity either immediately or delayed. Sooner or later the expanding population must and will be housed—adequately, we hope, but certainly, we know.

When it comes to schoolhouses, however, we must pinpoint the problem somewhat more precisely. The schoolhouse requirements depend upon the number of children in specific age groups, let us say the groups covering the census-age classes of 5 to 19 years. In 1949 there were about 35,000,000 persons between the ages of 5 and 19 years; provisional estimates on a medium projection suggest that there will be more than 47,000,000 in these same 5- to 19-year age brackets by 1960.

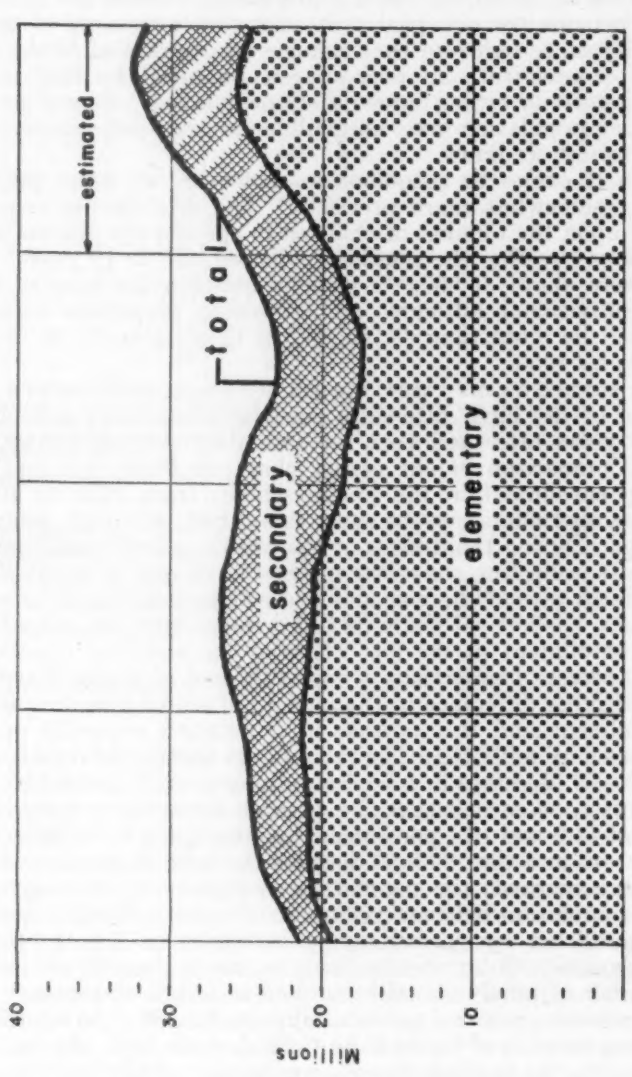
In substance we may view the schoolhousing problem as a "lagged" function of the birth rate—the need for elementary schools coming some 5 years after and that for secondary schools about a decade later. Comparison of our earlier chart on birth rate and chart 9, showing enrollment in the public schools from 1920 to 1950, with estimates to 1960, serves to show this direct, although delayed, relationship. During the decade of the 1940's, school enrollment fell off materially, reflecting the relatively low birth rate of the 1930's. The higher birth rate of the war and postwar period, it will be seen from the charts, has not yet made its full demand upon the school systems. School enrollment in the late fifties is consequently expected to be some 50 percent higher than it was at the end of World War II.

The striking difference in the pattern of school demands as reflected by enrollment and the increase in population generally are further emphasized by table 10. The table shows that in the decades 1910–20 and 1920–30 increases in school enrollments of 21.1 and 19.0 percent, respectively, were substantially greater than the corresponding increases of 14.9 and 16.1 percent in the population as a whole. During the 1930–40 and the 1940–50 decades the lack of correspondence was even more marked; the percentage increases which occurred in the general population between 1930 and 1950 were, it will be seen, in no sense paralleled by corresponding increases in school enrollments. While general population was rising by more than 25 million persons the number of pupils actually enrolled in public elementary and secondary schools remained substantially unchanged. In addition to the decreasing number of births from 1928 through 1940, the lag in enrollments during the two last decades was largely attributable to economic conditions—first, to the depression years, and during the war years of the earlier 1940's to the lure of attractive wages for youth. Military service during the later period likewise tended to reduce enrollment in the secondary schools.

[12] Statistical materials and estimates included in this section have been drawn largely from Federal Security Agency, Office of Education, First Progress Report of the School Facilities Survey, 1951–52 and hearings on Federal Assistance for School Construction and Aid to Education before a special subcommittee of the Committee on Education and Labor, House of Representatives, 82d Cong., 2d sess.

CHART 9

ENROLLMENT IN PUBLIC SCHOOLS
1920 - 1960



Source: Federal Security Agency, Office of Education, School Housing Section.

TABLE 10.—*Total population and pupils enrolled in public elementary and secondary schools, continental United States, by decades 1910–50, with estimates for 1960*

	Total population (in millions)	Pupils enrolled (in millions)	Percent increase during decade preceding	
			Total population	Pupils enrolled
1910	92.0	17.8		
1920	105.7	21.6	14.9	21.1
1930	122.8	25.7	16.1	19.0
1940	131.9	25.4	7.4	−1.0
1950	150.7	25.1	14.3	−1.2
1960	173.5	32.0	15.5	27.4

Source: School Facilities Survey, Office of Education, Federal Security Agency.

Now, in the 1950's, we face not only a radical reversal of this trend in evidence for two decades, but the prospect that elementary- and secondary-school enrollment may jump 27 percent or by about 7 million children in 10 years (table 11). We thus face a situation in which a substantial increase in enrollment will follow closely on the heels of a long period in which, partly because of defense restrictions on new construction and partly because of a static or declining need, school construction and maintenance has been allowed to languish and fall behind. Beside this sudden pick-up in demand arising from the

TABLE 11.—*Actual and estimated enrollments* [1] *in public schools of continental United States in certain years, 1920 through 1960, classified according to level*

Year	Elementary	Percent of 1950 enrollment	Secondary	Percent of 1950 enrollment	Total	Percent of 1950 enrollment
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1920	19,378,927	99.97	2,199,389	38.40	21,578,316	85.93
1922	20,366,218	105.06	2,873,009	50.17	23,239,227	92.54
1924	20,898,930	107.81	3,389,878	59.19	24,288,808	96.72
1926	20,984,002	108.25	3,757,466	65.61	24,741,468	98.53
1928	21,268,417	109.72	3,911,279	68.29	25,179,696	100.27
1930	21,278,593	109.77	4,399,422	76.82	25,678,015	102.26
1932	21,135,420	109.03	5,140,021	89.75	26,275,441	104.64
1934	20,765,037	107.12	5,669,156	98.99	26,434,193	105.27
1936	20,392,561	105.20	5,974,537	104.32	26,367,098	105.00
1938	19,748,174	101.88	6,226,934	108.73	25,975,108	103.44
1940	18,832,098	97.15	6,601,444	115.27	25,433,542	101.28
1942	18,174,668	93.76	6,387,805	111.54	24,562,473	97.81
1944	17,713,096	91.38	5,553,520	96.97	23,266,616	92.65
1946	17,677,744	91.20	5,622,197	98.17	23,299,941	92.79
1948	18,291,227	94.36	5,653,305	98.71	23,944,532	95.35
1950 [2]	19,384,424	100.00	5,727,009	100.00	25,111,433	100.00
1951 [2]	20,707,000	106.82	5,452,000	95.20	26,159,000	104.17
1952 [2]	21,351,000	110.15	5,456,000	95.27	26,807,000	106.75
1953 [2]	22,704,000	117.12	5,525,000	96.47	28,229,000	112.41
1954 [2]	23,872,000	123.15	5,638,000	98.45	29,510,000	117.52
1955 [2]	24,869,000	128.29	5,753,000	100.45	30,622,000	121.94
1956 [2]	25,412,000	131.09	5,972,000	104.28	31,384,000	124.98
1957 [2]	25,505,000	131.57	6,361,000	111.07	31,866,000	126.90
1958 [2]	25,398,000	131.02	6,753,000	117.91	32,151,000	128.03
1959 [2]	24,978,000	128.86	7,039,000	122.91	32,017,000	127.50
1960 [2]	24,743,000	127.64	7,237,000	126.37	31,980,000	127.35

[1] The enrollments used are those reported in the biennial statistical summaries of education.
[2] Reported but unpublished enrollments.
[3] Smith, Rose Marie. "Rising Enrollments in Nonpublic Schools." School Life, 32:116, May 1950. The data selected are from the "public" columns of tables 1, 2, and 3, with the totals reduced 100,000 pupils after 1950 to eliminate the effect of enrollments in residential schools for exceptional children and in college-operated elementary and secondary schools. On the basis of 1947–48 experience, the 100,000 deduction was distributed as follows: 73,000 from elementary estimates; 27,000 from secondary estimates.

Source: School Facilities Survey, Office of Education, Federal Security Agency.

recent upward climb of birth rates, other factors have of course intensified the schoolhousing needs. The percentage of pupils attending daily school increased from 72.1 percent in 1910 to 88.8 percent in 1950, indicating an apparent improvement in public attitudes and habits respecting school attendance. The mobility of population during the war, the postwar, and the defense build-up periods has likewise become an important factor in assessing the needs for schoolhousing in specific States and localities. The combined effect of these factors making for increased enrollment alone means that, in order to provide facilities for added pupils, 200,000 to 225,000 added schoolrooms will be needed during the next 7 or 8 years.

Staggering as this prospective demand occasioned by increased enrollment may be, the suddenness with which it has come upon us—in the midst of wartime building restrictions—finds the existing elementary and secondary school plant already inadequate in many respects. In order to provide a sound factual basis for further consideration of the problem, the School Facilities Survey was authorized by Public Law 815, Eighty-first Congress. Designed to provide an extensive inventory of existing public facilities and an estimate of the availability of local resources to take care of needed new construction, only partial and preliminary data are available at this time. These data are enough to demonstrate, however, that in spite of the fact that many individual communities are able to point with pride to new schools or projected new building plans, the quality of the existing school plant as a whole is scarcely such as to warrant public complacency.

Overcrowding, for example, is a widespread and generally recognized problem. Nearly 46 percent of the existing, permanent classrooms, according to the recent study, provide 20 feet or less of floor space per pupil. (The data are from 25 States enrolling 44 percent of the public-school pupils in the United States.) This rate of loading—allocating gross classroom space barely larger than an office-desk top to each pupil—does not, by the survey definitions, purport to show the extent of overcrowding in rented, makeshift, or other quarters classified as "unsatisfactory." The standard of 20 feet or less per pupil in these classrooms does not include, for example, situations such as that described to the Joint Committee on the Economic Report last winter, when a witness observed:

> The classes at the school in my rapidly growing community are held in the school bus during the time that their usual meeting place, the cafeteria, is in use.[13]

But, overcrowding is only part of the problem. The same survey indicates that (in 17 reporting States) about one out of every five pupils were housed in buildings "not acceptable" as to fire safety, using the criteria of the National Council on Schoolhouse Construction as the basis for measuring fire safety for pupils. Considering the school plant as a whole, 21 percent of the pupils in 25 States reporting are housed in schools completely lacking indoor flush toilets. As may be seen from table 12, 40 percent of the buildings, housing 26 percent of the pupils, were over 30 years old, while one-sixth of the school buildings in these States were over 50 years old.

For those who would emphasize the quality of teaching rather than the physical facilities, it is worth noting that in the school year 1949–50

[13] Hearings on the January 1952 Economic Report of the President, Joint Committee on the Economic Report, 82d Cong., 2d sess., p. 261, January 30, 1952.

there were still about 60,000 one-teacher schools in the United States. Nebraska and Iowa lead with more than 4,000 each; Kentucky, Minnesota, Missouri, South Dakota, and Wisconsin follow with more than 3,000 each; even New York State has more than 1,000 of these one-teacher schools. Without detracting from the distinguished role which the traditional one-room schoolhouse has played in the culture of the Nation up to now, the reorganization of small, uneconomical districts by consolidation into modern, adequate facilities must remain an ideal, not only educationally but fiscally.

Wherever one chooses to draw the line between "satisfactory" and "unsatisfactory," "acceptable" and "unacceptable" school plants, it seems clear that much needs, and ought, to be done by way of rehabilitation and up-grading if the facilities are to keep pace with reasonable standards of safety and decency.

TABLE 12.—*Age of school buildings and percent of pupils housed in buildings of various ages, Mar. 15, 1952*

Age of school building (years old)	Percentage of all buildings falling within class	Percent of pupils housed in buildings within each class
Less than 11 years	14.68	18.02
11 to 20 years	19.15	22.08
21 to 30 years	26.24	33.40
31 to 50 years	23.47	19.65
Over 50 years	16.46	6.85
Total	100.00	100.00

Source: School Facilities Survey, Office of Education, Federal Security Agency.

Based on data from 25 States enrolling 44 percent of public-school pupils.

In testimony before a congressional committee, the United States Commissioner of Education recently offered a tentative estimate of the cost of correcting existing inadequacies in school facilities and of providing school facilities adequate to take care of actual enrollment as of the fall of 1952 in public elementary and secondary schools.[14] The estimate, in 1951 dollars, follows:

For rehabilitating and remodeling existing plants	$469, 500, 000
For new school construction currently needed	8, 744, 000, 000
For acquiring and improving land for school sites	570, 500, 000
For additional school busses currently needed	170, 000, 000
Total	9, 954, 000, 000

For purposes of constructing this estimate, it was estimated that the average cost of a classroom, together with necessary auxiliary facilities, was about $27,500 at 1951 prices. This estimate of some $10 billion, it must be emphasized, covers only amounts needed to bring the existing situation abreast of current demands for school facilities. It makes no provision for added construction or for normal replacement called for beyond the fall of 1952.

We have already pointed out that there will be considerable increases in the population of school age during the remainder of the decade, but since the demand is not presently known area by area or State by State, no precise inventory of advance needs has been made

[14] Supra, p. 55, note 1.

as yet. Keeping the estimate conservative, we have previously suggested that 200,000 to 225,000 classrooms will be needed to take care of the added population of school age. Applying the estimated average figure of $27,500 per room, it appears that something upward of $6 billion (at 1951 prices) will be needed for school construction to take care of increased enrollments anticipated between 1952 and 1960.

In the face of these sizable figures for existing and prospective needs, it seems almost pedantic to remind the reader that our present school facilities, like all other physical properties, will go on deteriorating year by year at some normal rate. We now have 900,000 classrooms serving the Nation's children. Assuming for the sake of conservatism the longest reasonable service life to be 50 years, 18,000 classrooms must, on the average, be replaced each year in order to hold the level of usable buildings constant, In the 8 years between now and 1960 this would add up to 144,000 classrooms, or nearly $4 billion at the average cost per classroom which we have assumed in earlier calculations.

Bringing these various figures on need and prospective need together, we may summarize as follows:

To take care of accumulated backlog of construction resulting from past population growth and postponement of construction during the depression and war periods	$10, 000, 000, 000
To take care of the increased enrollment expected to amount to 5,000,000 additional children by 1960	6, 000, 000, 000
Normal needs to offset depreciation on a 50-year service-life basis for school buildings	4, 000, 000, 000
Total	20, 000, 000, 000

It is small wonder that the United States Commissioner of Education, testifying in April 1952 before a special subcommittee of the House Committee on Education and Labor, began his statement by saying:

> The need for schoolhouse construction today is without precedent in the history of this Nation. * * * It is a disquieting picture, deeply disquieting to anyone who has the educational welfare of America's children at heart.

The need for schoolhousing is of course only one part of the picture. Of utmost importance from both the social and economic standpoint is the problem of financing and of seeing that funds are available. The view that educational opportunities ought to be provided for all of the children of all of the people is so generally accepted throughout the United States that we may take it for granted that the public bodies and the legislatures will do all that they can financially to cure the existing and prospective deficiencies.

One of the purposes of the school-facilities survey authorized by the Eighty-first Congress is to determine the capacity of individual school districts to take care of their specific financial problems with or without State or National assistance. Unfortunately this phase of the survey has not yet progressed to the point where an accurate inventory of financial resources is available. One peculiarity of the financing problem is that unused taxing and unused bonding powers in some districts are not available for taking care of deficits or excessive needs in other areas. Since we do not know area by area where

the increases in enrollments will fall during the years ahead, it is almost impossible to determine how much of the demand arising from increases in population can be taken care of by local authorities.

The Office of Education, projecting to a national basis the reports of 18 States reporting, has, however, made a tentative estimate of the share of the total costs which can be met by the school districts in taking care of the accumulated backlog. If the various school districts were to levy taxes and issue bonds up to their respective maximum legal limits, or up to reasonable limits where no legal limit is now set, the funds available locally, it is estimated, would provide a little over $5 billion of the $10 billion needed to come abreast of current demands. Conversely, the deficits as represented by the excess of the needs over the ability to raise funds, in districts having such deficits, would amount to about $5 billion.

What the actual inventory of local resources included in the second phase of the survey will show, we cannot now estimate. But it does seem clear that in certain instances not only State aid but possibly some Federal financial assistance to the local communities may be needed if the schools are to be built. The extent to which such assistance may be authorized depends in part upon the public demands for "adequate" schoolbousing, which brings us back to our original observation that the American tradition takes for granted that educational opportunities ought to be provided for all of our children.

Fortunately, chart 10 (based upon the data in table 13) gives us reason to believe that the Nation as a whole can today afford to provide the necessary school facilities as it has done in the past. The chart shows expenditures for capital outlay for elementary and secondary schools in terms of constant dollars, that is, in terms of 1951 costs.[15] In 1951, which was by far the year of highest dollar expenditures for school building, on an actual physical basis the amount of building was far less impressive. While total national income in real terms shows an increase of more than 250 percent from 1925 to 1951, school building in the same real terms was increased less than 15 percent. While there are doubtless several reasons tending to explain this lag, paramount of which has been the scarcity of materials for this purpose, it should come as something of a shock to most people to realize that the Nation today, in the midst of prosperity and advancement in other areas, is devoting a far smaller proportion of its total resources to maintaining the school-facilities plant than it did three decades ago when the country was smaller in both real income and population. The general support given to school-district bonding proposals at recent elections indicates the public disposition to do something about it.

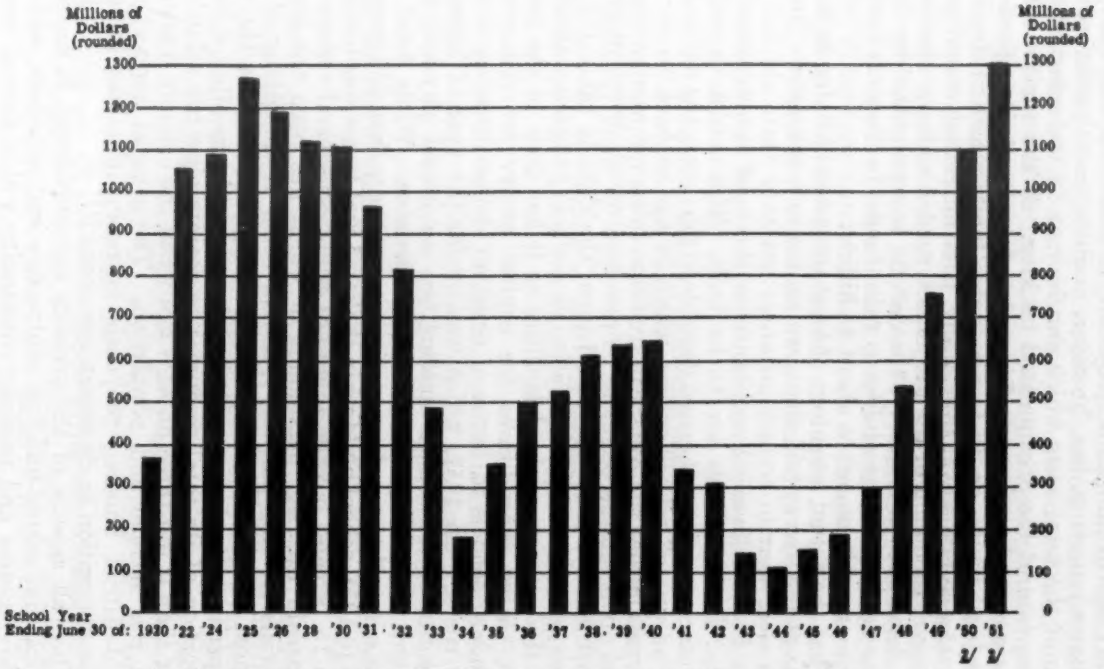
When all aspects of the problem are considered, it seems safe to predict that school-building contractors and suppliers, and all parts of the business and working community which depend upon them, can look forward to some busy years.

[15] Hearings on allocation of scarce materials for school construction before a subcommittee of the Committee on Education and Labor, House of Representatives, 82d Cong., 1st sess.

CHART 10

EXPENDITURES FOR CAPITAL OUTLAY FOR ELEMENTARY AND SECONDARY SCHOOLS

(public and non-public) in terms of 1951 costs 1/



1/ Based on Engineering News Record index of general construction costs on 1913 base for calendar years

2/ Estimate, complete returns not yet available

Source: Office of Education, Federal Security Agency.

TABLE 13.—*Expenditures for capital outlay in certain years for public elementary and secondary schools, adjusted to 1951 cost levels, 1906–51*

School year ending June 30 of—	Actual capital outlay (in millions)	Total capital outlay, 1951 cost level [1] (in millions)	Expenditure per pupil enrolled, 1951 cost level [1]	School year ending June 30 of—	Actual capital outlay (in millions)	Total capital outlay, 1951 cost level [1] (in millions)	Expenditure per pupil enrolled, 1951 cost level [1]
(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
1906–12 [2]			[3] $4.05	1937	$205	$468	
1914–20 [2]			[3] 5.71	1938	239	548	$21.09
1920	$154	$332	15.35	1939	248	571	
1922	306	951	40.92	1940	258	577	22.67
1924	388	976	40.24	1941	149	312	
1925	434	1,134	45.97	1942	138	271	10.98
1926	411	1,069	43.20	1943	69	129	
1928	383	1,001	39.75	1944	54	98	4.18
1930	371	989	38.48	1945	76	133	
1931	289	864		1946	111	174	7.46
1932	211	727	27.67	1947	205	269	
1933	135	430		1948	412	483	20.22
1934	59	161	6.12	1949	599	679	
1935	115	319		1950	[4] 1,014	1,078	42.93
1936	171	447	16.99	1951	[4] 1,293	1,293	[4] 50.49

[1] 1951 cost level based on Engineering News Record index of general construction costs on 1913 base for calendar years.
[2] From Barrows, Bulletin 1937, No. 35, p. 18.
[3] Actual; not adjusted to 1951 cost level.
[4] Based on Statistics of State School Systems, 1950–51: Preliminary Data for 24 States, Circular No. 352, Office of Education, August 1952.

Source: Office of Education, Federal Security Agency.

Hospital construction needs and programs [16]

Under terms of the Hospital Survey and Construction Act, popularly called the Hill-Burton program (Public Law 725, 79th Cong.; known also as title VI of the Public Health Service Act), each State prepares and submits to the Surgeon General of the Public Health Service a State plan for hospital construction. We have as a consequence been provided with a systematic, Nation-wide inventory of existing hospital facilities and construction needs.

In order that some uniform and fair sharing among the States of available Federal aid for construction may be assured, the act provides that in order to be eligible for participation in the Federal program the total of "general" hospital beds within a State shall not exceed 4.5 beds per thousand population (except that, in States with especially low population density, the limit may be varied upward to 5.5 beds per thousand). The act sets also the standard for the mental diseases of 5 beds per thousand population; for the chronic diseases 2 beds per thousand population; and for tuberculosis 2.5 beds per average annual death in the State from tuberculosis over a 5-year base period.

The standards established by the act provide a carefully considered and objective bench mark by which to judge the adequacy and distribution of hospital services and shortages throughout the Nation. The data have, moreover, been regularly reexamined by the respective State authorities and the Surgeon General, taking account of changing needs arising from population changes and for current construction. A summary of the over-all national needs under the standards set by the act, by dates and categories, is given in table 14.

[16] Statistical materials and estimates included in this section have been drawn from information furnished by the Federal Security Agency, Public Health Service.

Including all service categories, about 53.6 percent of the requirements calculated under the standards set forth in the act have been met as of January 1, 1952. There has been, it will be noted, a gradual improvement since the act became effective in the percentage of the total need being met by existing acceptable beds. There is still a very sizable deficit or backlog in needed construction amounting to approximately 882,000 beds. More than 70 percent of these, or 623,000, are in the pressing categories taking care of general, mental, and tuberculosis patients where, happily, our progress as well as our over-all coverage of needs has been relatively greater.

The remaining need for some 259,000 beds lies in the somewhat less pressing but growing area calling for "chronic" beds. Here the increasing need arises chiefly from the general aging of the population, from disabling accidents, from the degenerative diseases, etc. Historically the society has depended heavily on makeshift or home care of these cases with the result that our hospital coverage of this type of need has fallen far behind the more active categories. Whether this solution will prove adequate in the future most experts sincerely doubt. They point to the greater urbanization of the population, the shift to apartments and small-home living and the fewer relatives willing and able to assume nursing responsibilities, and numerous other long-run social changes. While we have thus far managed to get along with glaring deficiencies in this category below the two beds per thousand population standard suggested by the act, it is only proper to recognize that the needs in this situation will almost certainly grow progressively greater as the years go by.

TABLE 14.—*Number of existing beds and estimated total hospital beds needed, as shown by State plans, Jan. 1, 1948–52, and by type of bed, Jan. 1, 1952*

	Total needed	Existing acceptable	Additional needed	Percent total need met by existing acceptable
DATE				
Jan. 1, 1948	1,776,401	867,960	908,441	48.9
Jan. 1, 1949	1,776,673	879,872	896,801	49.5
Jan. 1, 1950	1,850,052	952,196	897,856	51.5
Jan. 1, 1951	1,883,487	1,009,918	873,569	53.6
Jan. 1, 1952	1,899,806	1,017,823	881,983	53.6
TYPE OF BED				
General	708,574	474,334	234,240	66.9
Mental	755,097	412,932	342,165	58.5
Tuberculosis	133,899	87,550	46,349	65.4
Chronic	302,236	43,007	259,229	14.5
Total	1,899,806	1,017,823	881,983	53.6

Needs estimated by each State on the basis of the maximum ratios permissible for Federal aid as prescribed by title VI, Public Health Service Act.

Source: Federal Security Agency, Public Health Service, Hospital Beds in the United States, 1951, by John W. Cronin, M. D., and Maurice E. Odoroff, M. A., with Supplemental Schedule for 1952 data.

The shortage of existing, acceptable beds according to the 1951 survey is quite general throughout the entire United States, as is shown by table 15. The table gives by States the extent to which existing beds cover the estimated needs, together with the number of existing beds per thousand population in comparison with the Hill-Burton standard for each category of service. Only three States—Montana, Nevada, and North Dakota—have met or exceeded the

standard in the general bed category on a State-wide basis. It must, however, be recognized that even in these States of low population density there are still large areas within the State where local facilities fall far short of reasonable requirements. The deficiency in beds for tuberculosis patients and for patients having mental and chronic

TABLE 15.—*Hospital bed requirements, existing acceptable beds, Jan. 1, 1952; and number of beds per 1,000 population by categories by States*

State	Total needed [1]	Existing acceptable	Additional needed	Percent total need met by existing acceptable	Existing acceptable per 1,000 population, 1951			
					General	Mental	Tuberculosis [2]	Chronic
United States	1,899,806	1,017,823	881,983	53.6				
Continental United States	1,855,191	1,002,305	852,886	54.0	3.2	2.8	1.6	0.3
Alabama	37,601	11,542	26,059	30.7	2.4	1.2	.5	
Arizona	10,750	5,187	5,563	48.3	3.8	1.8	1.1	.1
Arkansas	23,940	8,236	15,704	34.4	1.9	1.6	2.1	
California	132,050	76,523	55,527	58.0	3.0	3.4	1.4	.2
Colorado	16,382	12,578	3,804	76.8	4.4	4.4	4.7	
Connecticut	24,978	17,861	7,117	71.5	3.3	4.3	2.9	.4
Delaware	4,012	2,623	1,389	65.4	4.0	2.4	1.7	.8
District of Columbia	10,983	6,420	4,563	58.5	3.0	3.4	1.7	.2
Florida	29,078	16,221	12,857	55.8	3.3	2.5	2.5	.4
Georgia	41,731	21,483	20,248	51.5	2.6	3.2	1.4	.5
Idaho	7,305	3,280	4,025	44.9	2.7	1.6	1.0	.3
Illinois	106,539	56,353	50,186	52.9	3.3	2.2	1.8	.4
Indiana	48,088	18,986	29,102	39.5	2.1	2.5	1.1	.1
Iowa	30,885	13,032	17,853	42.2	3.4	1.2	1.6	.2
Kansas	23,027	12,839	10,188	55.8	3.5	3.2	1.4	.1
Kentucky	37,836	17,083	20,753	45.2	2.7	2.7	1.0	.1
Louisiana	34,547	16,944	17,603	49.0	3.7	2.3	1.5	.1
Maine	11,168	5,440	5,728	48.7	2.1	3.3	1.4	.2
Maryland	29,280	17,303	11,977	59.1	3.3	2.8	1.5	.8
Massachusetts	59,632	40,494	19,138	67.9	2.8	4.6	2.3	.4
Michigan	74,538	33,687	40,851	45.2	2.4	1.9	2.1	.2
Minnesota	36,904	22,503	14,401	61.0	3.8	3.0	3.1	.2
Mississippi	26,763	8,578	18,185	32.1	2.6	1.8	.9	
Missouri	49,057	30,455	18,602	62.1	3.7	3.2	1.4	.3
Montana	8,310	5,590	2,720	67.3	6.4	3.9	1.5	
Nebraska	15,833	10,650	5,183	67.3	3.7	3.4	1.4	.4
Nevada	2,098	995	1,103	47.4	4.7	1.8	.4	
New Hampshire	6,486	4,285	2,201	66.1	3.4	4.4	1.7	.1
New Jersey	58,225	35,714	22,511	61.3	3.4	3.1	1.9	.6
New Mexico	9,499	3,980	5,519	41.9	3.9	1.8	.8	.1
New York	186,237	132,647	53,590	71.2	3.4	4.2	1.9	.6
North Carolina	50,814	25,741	25,073	50.7	3.5	3.0	2.5	.1
North Dakota	8,589	5,675	2,914	66.1	5.1	4.0	2.8	.2
Ohio	94,518	43,758	50,760	46.3	3.0	2.5	1.2	.1
Oklahoma	27,502	16,029	11,473	58.3	3.4	2.7	1.3	.1
Oregon	18,170	9,268	8,902	51.0	2.5	2.4	1.9	
Pennsylvania	132,469	73,530	58,939	55.5	3.4	3.1	1.1	.2
Rhode Island	9,530	6,816	2,714	71.5	2.4	4.0	2.2	1.6
South Carolina	25,671	11,180	14,491	43.6	3.1	1.8	2.0	.1
South Dakota	8,269	4,455	3,814	53.9	4.2	2.9	2.3	
Tennessee	41,866	21,343	20,523	51.0	2.8	2.5	1.3	.7
Texas	92,442	42,824	49,618	46.3	3.5	1.5	1.1	.4
Utah	8,407	3,556	4,851	42.3	3.4	1.6	1.5	.1
Vermont	4,587	2,501	2,086	54.5	3.0	3.4	1.3	.1
Virginia	37,618	16,103	21,515	42.8	2.9	2.0	1.4	
Washington	31,229	16,866	14,363	54.0	2.8	2.4	3.7	.5
West Virginia	24,769	9,730	15,039	39.3	2.7	1.4	1.9	
Wisconsin	41,362	21,403	19,959	51.7	3.8	2.7	2.7	.3
Wyoming	3,617	2,015	1,602	55.7	3.6	2.5	1.8	.3
Alaska	2,380	1,338	1,042	56.2	1.3		.5	
Hawaii	6,699	3,809	2,890	56.9	2.3	1.9	5.1	.4
Puerto Rico	35,168	10,371	24,797	29.5	2.6	1.0	.7	.1
Virgin Islands	368		368					
Hill-Burton standard [3]					4.5	5.0	2.5	2.0

[1] All categories.
[2] Per average annual death from tuberculosis.
[3] As set by title VI, Public Health Service Act.

Source: Data on existing and needed beds from Division of Hospital Facilities, Public Health Service, release dated June 25, 1952. Data on existing acceptable per thousand population from Public Health Service report, Hospital Beds in the United States, vol. 67, No. 3, March 1952, pp. 312-315.

diseases is likewise widespread. Only a few scattered States come up to the standards called for by the Public Health Service Act for tuberculosis beds, while few States even approach the levels needed to care for the mental and chronically ill.

What does this deficiency in hospital facilities mean in terms of added investment requirements? We emphasize this added investment aspect of the problem, for no one dare estimate what the cost of continuing the deficiency means in "economic" terms. Certainly it is inestimably large. Quite apart from public welfare considerations, it will generally be admitted that inadequate hospitalization is costly in the real economic sense insofar as it means more working days lost from productive work, more protracted illnesses, more persons on the sick lists, etc. Serious and real as these costs are, our interest here is primarily in giving some economic measure to the deficiency which we have thus far been measuring in physical terms—in terms, that is, of beds needed.

The Public Health Service has made estimates of what it would cost to bring our hospital plant up to "par," employing an average estimated cost per "bed" of $16,000 at June 1952 prices. While it is conceded that some differences in cost are certain to appear in dealing with the different categories of need, the Service is of the opinion that if modern standards of design and equipment are observed, there is insufficient evidence to justify using a cost differential per bed among the several types of hospitals. Taking this average cost per bed of $16,000, the 882,000 beds needed as of January 1, 1952, would call for a program of new construction amounting to nearly $14 billion at 1952 prices. Even if one were to ignore or discount the estimated needs in the "chronic" category, holding to the view that home care or some other means of solving this problem were available, we would still have a $10 billion backlog covering only the general, tuberculosis, and mental categories facilities. While it is obvious that this $14 billion backlog cannot be wiped out in any one year, table 16

TABLE 16.—*Volume of new hospital construction required to meet all needs by 1960*

Calendar year	Total unmet need (beds)				Program of new construction		
	Initial backlog	For annual obsolescence [1]	For population increase [2]		Beds added		Estimated cost at $16,000 per bed (in millions)
			Persons (in thousands)	Beds at 12 per thousand population	Total	Net	
1952	[3] 762,000	20,000	2,000	24,000	52,500	8,500	[4] $840
1953	753,500	20,000	1,850	22,200	70,000	27,800	1,120
1954	725,700	20,000	1,750	21,000	100,000	59,000	1,600
1955	666,700	20,000	1,650	19,800	140,000	100,200	2,240
1956	566,500	20,000	1,600	19,200	160,000	120,800	2,560
1957	445,700	20,000	1,550	18,600	160,000	121,400	2,560
1958	324,300	20,000	1,530	18,000	160,000	122,000	2,560
1959	202,300	20,000	1,450	17,400	160,000	122,600	2,560
1960	79,700	20,000	1,400	16,800	116,500	79,700	1,860
Total	(762,000)	180,000	14,750	177,000	1,119,000	762,000	17,900

[1] Estimated at 2 percent annually for 1,000,000 existing acceptable beds.
[2] Based medium projections of Bureau of the Census (series P. 25, No. 56).
[3] Hill-Burton plans, less veterans' hospitals (882,000—120,000).
[4] Current forecast by Bureau of Labor Statistics.

Source: Division of Hospital Facilities, Public Health Service, Federal Security Agency.

does illustrate a hypothetical plan which by 1960 would wipe out most of this existing backlog at about as fast a rate as appears feasible while keeping up with increasing population and offsetting continuing obsolescence. About $2½ billion of new construction at present costs would, under this schedule, be called for in each of the years after 1954 in order to assure the new volume of hospital construction required to meet all needs by 1960.

While we may not fully attain the rate of progress suggested by this model construction program for clearing up our existing backlog, the unmet needs assure a substantial hospital building and equipment potential for some years to come. By way of sizing up what the task of catching up with the backlog and meeting our growing needs means in relative terms, we turn to table 17, which shows the actual volume of hospital construction in the country in the years since 1920. In 1951 approximately $917 million worth of hospital construction was put in place, according to figures compiled cooperatively by the Department of Commerce and the Bureau of Labor Statistics and analyzed by officials of the Public Health Service. The table shows also the value of construction at constant prices, that is, with changes in the purchasing power of the construction dollar eliminated. Even after adjustment for changes in the purchasing power of the dollar, hospital construction in 1951 stood at an all-time high, about 1½ times greater in real terms than in 1930, the prewar, peak year.

While the rate of total hospital construction has been increasing each year since the end of World War II, the program necessary to take care of all needs by 1960 would call for from 2 to 2½ times as much construction during the rest of this decade as was put in place in 1951. After adjusting for changes in the purchasing power of the dollar, the program would call for about 3 or 4 times the prewar construction levels of 1930. The table, incidentally, illustrates quite graphically the almost complete shut-down of hospital construction

TABLE 17.—*Value of hospital construction put in place, index of construction costs and value of construction at 1952 construction costs, 1920–52*

[In millions of dollars]

Year	Value of construction	Index of construction costs (1952=100)[1]	Value of construction at 1952 prices	Year	Value of construction	Index of construction costs (1952=100)[1]	Value of construction at 1952 prices
1920	$63	51.9	$121	1937	$104	36.3	$287
1921	84	39.6	212	1938	132	36.5	362
1922	113	36.7	308	1939	158	36.8	429
1923	112	41.1	273	1940	87	37.5	232
1924	123	40.7	302	1941	88	39.9	221
1925	140	39.8	352	1942	64	44.2	145
1926	151	39.8	379	1943	55	46.1	119
1927	186	39.8	467	1944	84	47.8	176
1928	208	39.8	523	1945	122	49.7	245
1929	205	39.8	515	1946	170	59.1	288
1930	227	36.7	619	1947	195	78.8	247
1931	181	32.6	555	1948	349	89.7	389
1932	117	28.4	412	1949	679	89.9	755
1933	59	27.5	215	1950	812	91.7	885
1934	60	29.5	203	1951	917	97.4	940
1935	48	29.7	162	1952[1]	866	100.0	866
1936	91	31.2	292				

[1] Index for 1952 based on period January through June. Value of construction estimated.

Source: Louis S. Reed, Chief, Medical Economics Branch, Division of Medical and Hospital Resources, Public Health Service, Hospital Construction Trends, The Modern Hospital, March 1952.

during the years from 1933 to 1944 during which on the average only some $80 million a year were expended on hospital construction in the entire country.

If we accept the existence of the backlog as estimated by the States and the Public Health Service (table 14), and the ideal or hope of catching up with our requirements by 1960 (table 16), the problem of enabling private and public agencies to undertake sufficient construction still remains. In this connection, two pieces of available evidence seem to be significant. In the period from 1935 to 1939, 23.3 percent of all construction represented private undertakings, including, that is, hospitals owned by private organizations, nonprofit or proprietary, and by individuals. The percentage of private construction to total construction has increased steadily since then and in 1951 amounted to 45.7 percent. At that point it was substantially back to the relative position which it held during the 1920's. This rising percentage of private construction indicates the rising public awareness of the hospital needs. What is even more important, it indicates a willingness and capacity of private enterprise to contribute its share toward rolling up substantial building totals to fill the gap.

Besides the private construction, some of which has, of course, been stimulated by the availability of Hill-Burton aid, public construction has gone on at an increasing rate. Hill-Burton projects undertaken by public bodies or eligible private programs have constituted an increasing proportion of the dollar value of hospital construction in the years since the act first became effective. To the end of fiscal 1952, about $550 million had been authorized under conditions of the act for Federal grants for hospital construction.

In the fiscal year 1952 the authorization for grants under the act amounted to $82.5 million which, on the basis of construction put in place during the first half of the year, would represent about one-tenth of total amounts invested by all sources. The States alone at present are using Federal funds to pay about 47 percent of the costs of projects, including equipment. It is quite clear that the Hill-Burton program is not only playing an important role in increasing the volume of public-hospital construction, but acts to stimulate projects of all types regardless of method of financing. It would, of course, be quite improper to draw the inference that any increase in authorization of Federal funds would in the future have a multiple reaction upon the volume of construction in general.

It is, nevertheless, only fair to suggest that when and if defense expenditures can be curtailed, the diversion of even modest amounts of Federal expenditures to the hospital-construction program might well act as a catalyst in helping to maintain total construction at or approximating the levels suggested by the hypothetical schedule set forth in table 16. We can apparently be certain of one thing from the evidence gathered by the State plans and the Public Health Service. The relatively high construction in 1951 has in no sense taken care of the accumulated demand. On the contrary, considering the increased population since 1930 and the almost total lack of building in 12 out of the past 22 years, the 1951 effort, good as it was, becomes rather modest beside the best, prewar years.

Highway construction and maintenance [17]

Early in 1950 the Joint Committee on the Economic Report published a report entitled "Highways and the Nation's Economy," presenting information on the need and economic value of highway rehabilitation and maintenance.[18] That report showed that at the 1948–49 price level the cost of rebuilding and modernizing the then deficient highways of the country would be about $41.2 billion, and that the rebuilding of highways that would become deficient during the succeeding 10 years would amount to an additional $14.4 billion. The total cost of clearly needed highway work over the 10-year period 1950–59, inclusive was, therefore, estimated at $55.6 billion. If spread uniformly over the period, that would mean more than $5.5 billion each year.

Since the preparation of that earlier report, several changes have occurred which have materially increased the size of the problem over the 1949 estimate. First of all, highway-construction costs today are at least 11 percent higher than they were in 1949 and the rise in general cost level has similarly called for increased expenditures for regular highway maintenance. In addition to the higher cost aspects, the use made of the highways has increased even more rapidly than was anticipated when the data for the 1950 report were prepared. This rapid increase in the traffic handled has caused additional deterioration and obsolescence in the highway system, as well as increasing the task of currently maintaining the systems.

According to testimony recently given a House Subcommittee on Roads, motor-vehicle travel in 1951 amounted to 485 billion vehicle-miles, nearly 100 billion vehicle-miles, or 22 percent, more than the 397 billion estimated for 1948. Chart 11 shows quite graphically the continually rising trend (except during wartime gas and material restrictions) in the miles of vehicle travel since 1920; especially noteworthy has been the catching-up and rise since the end of the war.

The load carried by trucks on all roads in 1951 amounted to 150 billion ton-miles, a 50-percent increase over the estimate for 1948, only 3 years previous. Both truck-vehicle-miles and the increased load carried by the average truck have contributed to the increase in the truck-traffic load. If, in the next 10 years we do no more than continue the past trend in expanding the number of trucks in use, today's 8 million will be tomorrow's (1960's) 10 million trucks—a 25-percent increase in numbers. (See chart 12, table 18.)

A prominent New York Stock Exchange house, pointing to the large potential market ahead for road-building equipment and materials suppliers, has summarized the evidence on the increases in highway use during the last decade as follows:

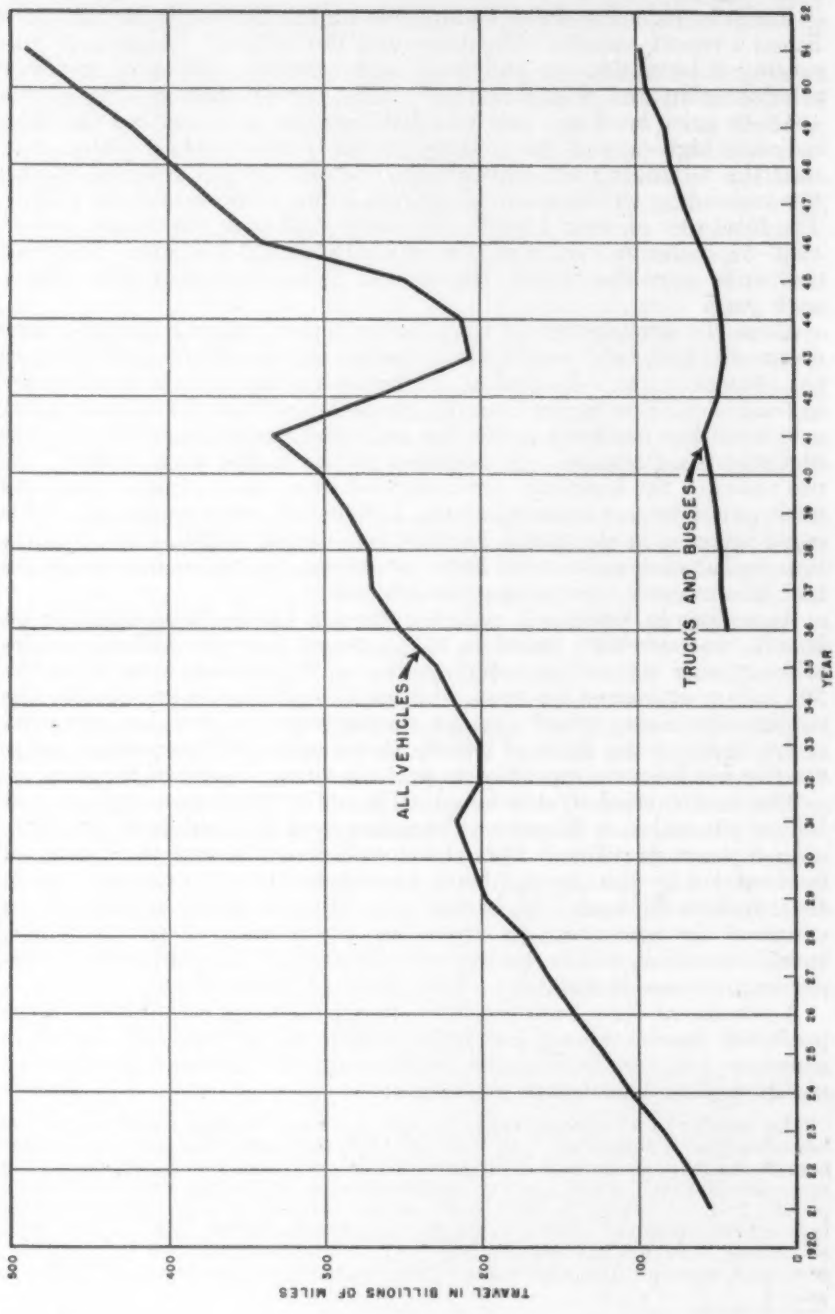
> The number of vehicles traveling up and down our highways and streets has increased greatly since 1941. As of July 1, 1951, there were 38.5 million passenger cars on the road, an increase of 39 percent over the 27.7 million cars in use on the same date in 1941. Trucks on the road experienced even a larger rise in the same period, from 4.6 million in 1941 to 8.1 million in 1951, or a gain of 77 percent. Over-all the number of vehicles in use per mile of roads has increased by more than 40 percent from 9.8 vehicles per mile in 1941 to 14 vehicles per mile in 1951. Moreover, cars and trucks are being driven further now than they ever have been before. * * *

[17] Statistical materials and estimates included in this section have been drawn from infor mation furnished by the Bureau of Public Roads, U. S. Department of Commerce.
Table and chart showing the growth in number of trucks in use were supplied at our req uest by the Office of Business Economics, U. S. Department of Commerce.
Road Building Ahead, E. F. Hutton & Co., Markets and Business Survey, July 7, 1952.

[18] Joint Committee on the Economic Report, Highways and the Nation's Economy, S. Doc. 145, 81st Cong., 2d sess.

CHART 11

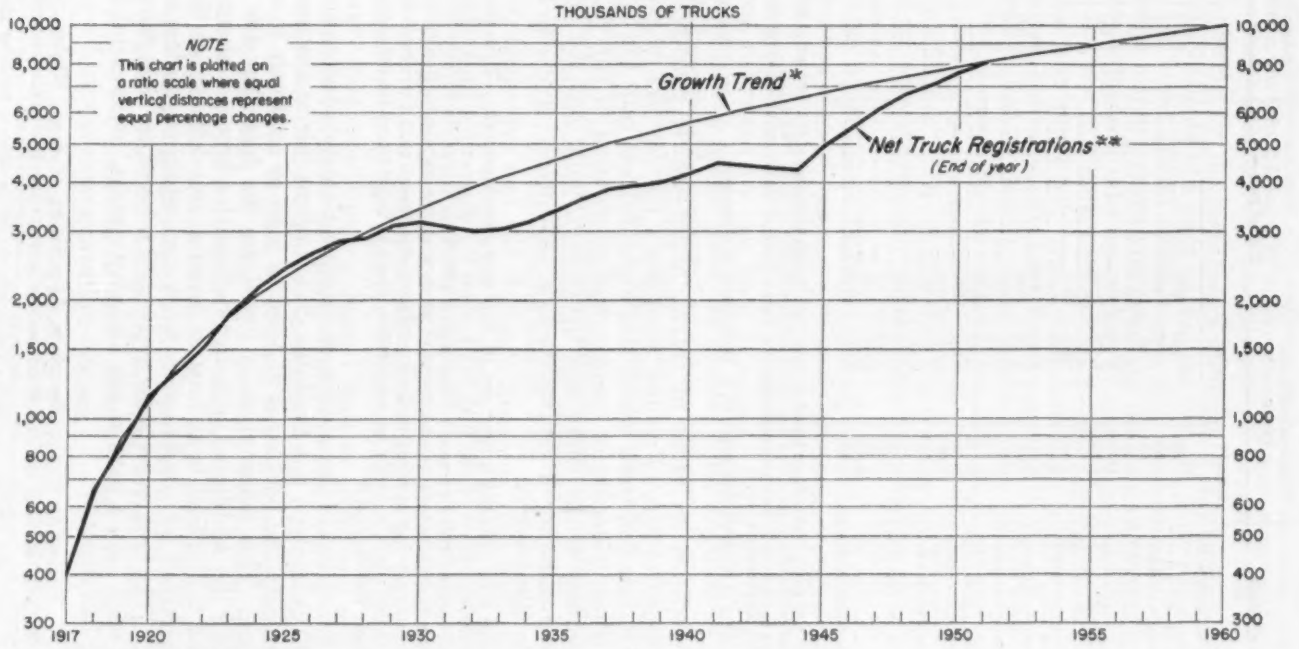
MILES OF VEHICLE TRAVEL IN THE UNITED STATES, 1920–51



Source: Based on data obtained from the Bureau of Public Roads, U. S. Department of Commerce.

CHART 12

GROWTH OF TRUCKS IN USE 1917–1960



* Trend fitted to data for 1917–1929

** Net truck registrations at the end of each year are total registrations in the following year, less new registrations also in the following year; data for 1951 are estimated.

SOURCE: Office of Business Economics, U.S. Department of Commerce

TABLE 18.—*Number of trucks in use, 1917–60*

End of year—	Thousands of trucks in use		End of year—	Thousands of trucks in use	
	Actual [1]	Computed [2]		Actual [1]	Computed [2]
1917	400	397	1939	4,014	5,468
1918	660	646	1940	4,218	5,690
1919	860	891	1941	4,482	5,910
1920	1,150	1,132	1942	4,399	6,131
1921	1,320	1,371	1943	4,367	6,351
1922	1,530	1,606	1944	4,325	6,570
1923	1,850	1,841	1945	4,964	6,790
1924	2,150	2,074	1946	5,567	7,009
1925	2,420	2,306	1947	6,175	7,230
1926	2,642	2,537	1948	6,731	7,447
1927	2,831	2,767	1949	7,097	7,665
1928	2,881	2,995	1950	7,619	7,883
1929	3,108	3,224	1951	8,100	8,100
1930	3,176	3,451	1952	----------	8,320
1931	3,077	3,677	1953	----------	8,535
1932	3,000	3,904	1954	----------	8,754
1933	3,026	4,129	1955	----------	8,971
1934	3,165	4,353	1956	----------	9,185
1935	3,389	4,577	1957	----------	9,399
1936	3,631	4,800	1958	----------	9,618
1937	3,845	5,023	1959	----------	9,833
1938	3,920	5,246	1960	----------	10,049

[1] Sources: Net truck registrations based on total registration estimates of the Bureau of Public Roads, U. S. Department of Commerce, and new registrations estimates of R. L. Polk & Co.
[2] Based on the following regression equation: Log trucks=2.43+95 log time (1915-½=0); r=0.998. Trend fitted to data for period 1917–29.

Source: Office of Business Economics, U. S. Department of Commerce.

No statistics on miles of travel, motor-vehicle registrations, or traffic densities can, of course, adequately portray the magnitude of the modernization work which this expanded use calls for by way of added lanes, widening of bridges, and elimination of curves. Owen and Dearing, of the Brookings Institution, point out the basic and pervasive character of the Nation-wide highway-development problem today in these words:

> We have now entered a new era of highway development. This stage in the physical development of the highway system is characterized by technical standards and capital requirements that make previous concepts totally inadequate. Highway administrators are confronted with a situation analogous to that of an entire industry being overtaken by functional obsolescence. Survival depends on modernization; but in order to modernize, the old tools must be replaced and the entire plant redesigned.[19]

The full extent of the additional deterioration and obsolescence since the 1949 estimate is not available, but it seems fair to assume that in the aggregate the backlog is at least as high as set forth in the 1949 estimates. This assumption is based on the fact that the cost of correcting the additional highway deficiencies brought about by the increased traffic load is at least as large as the deficiencies that have been corrected by construction work accomplished during the past 3 years. The brokerage letter previously referred to, citing authorities dealing with only a part of our highway system, pointed out how the backlog has risen:

> * * * According to the American Association of State Highway officials, the Federal-aid highway system alone needed more than $32 billion worth of high-

[19] Owen, Wilfred, and Dearing, Charles L., Toll Roads and the Problem of Highway Modernization (the Brookings Institution, 1951), p. 23.

way construction for current needs as of the first of 1952. This was an increase of $3 billion over a similar estimate made 2 years earlier despite $3 billion of construction since the previous estimate. To evaluate this amount even more clearly, it is worth pointing out that it is some $7 billion greater than the total expenditures for all business plant and equipment estimated for the record year of 1952.

After allowing for the increased maintenance expenditures and the growing obsolescence of a large part of the system, authorities estimate that for a 10-year period maintenance and reconstruction necessary to modernize existing roads and maintain the present system in satisfactory condition will take more than $7 billion per year against the estimate of some $5.5 billion made only a few years ago.[20] By way of comparison the previously mentioned testimony before the House subcommittee indicated that actual 1951 expenditures totaled approximately $4.2 billion or slightly more than half the annual expenditure estimated as necessary for the adequate rehabilitation and maintenance of the Nation's highway system during the next 10 years. Out of the 1951 expenditures, little more than half—only $2.7 billion—was expended for construction and rehabilitation as distinct from current maintenance.

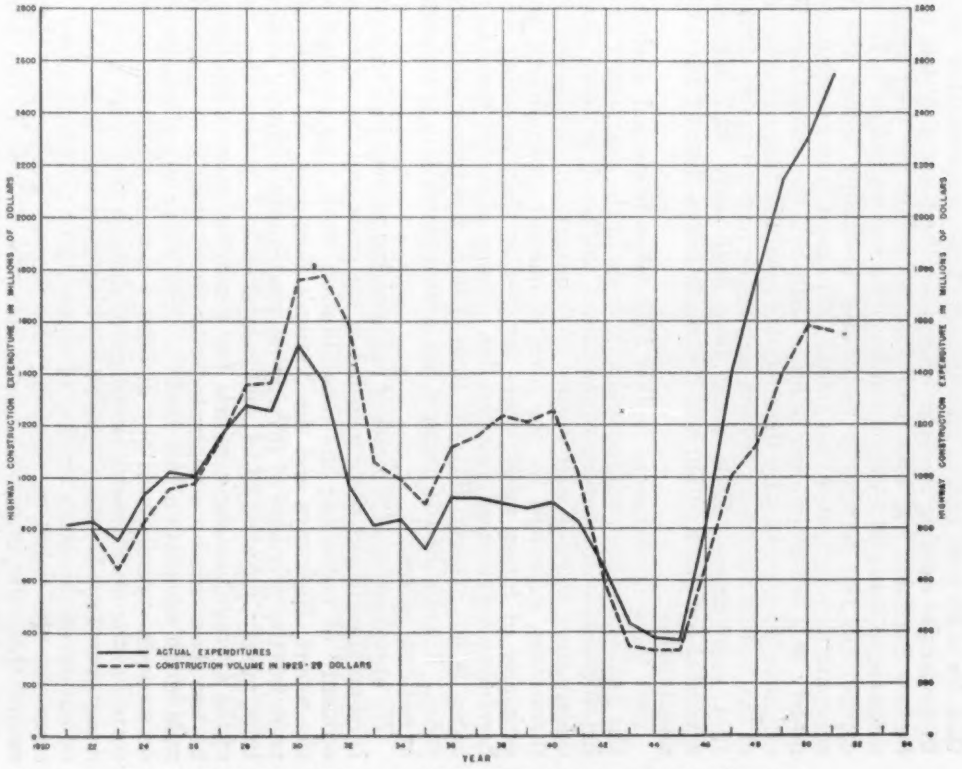
Lest these figures seem unduly high when measured against what the Nation has been willing and able to do in the past, chart 13 showing highway-construction expenditures adjusted to show constant dollars since 1920, is well worthy of examination. While dollar costs themselves, expressed by the level of current expenditures and the estimates of future needs, seem far greater than anything we have heretofore experienced, construction volume of recent years in "real" terms is not greatly different than that of the higher predepression years. Meanwhile the country has grown steadily in population and in national income.

No appreciation of the cost of modernizing present highway systems is complete without some mention of the costs and the effects on the economy of neglecting the rehabilitation work. As pointed out in the report, Highways and the Nation's Economy, the highway user pays for the privilege of driving on inadequate highway systems in time, money, physical effort, and mental effort. It costs the operator of the average passenger vehicle 1 or 2 minutes more of his time when he travels a mile on a congested city street than if he traveled that mile on an adequate urban facility. The operators of passenger cars on secondary rural roads pay at least 1 cent in additional operating costs for the questionable privilege of driving their cars a mile over dusty gravel roads rather than over a bituminous-surfaced road. The operators of the large trucks, of course, pay proportionately larger sums for the privilege of using the present inadequate highways rather than the improved roads that would exist if the highway systems of the Nation were rehabilitated. This added cost of transporting the Nation's goods is, of course, passed on to the ultimate consumer of the products being transported. The people of the Nation are, therefore, paying in many different ways for not having an adequate highway-transportation system.

[20] Harvey Firestone, Jr., of the Firestone Tire & Rubber Co., in a statement in the Wall Street Journal for May 19, 1952, cites competent authorities as estimating that "it will take five to seven billion dollars a year for the next 15 years to build essential roads, to modernize existing highways, and to maintain our present system in satisfactory condition."

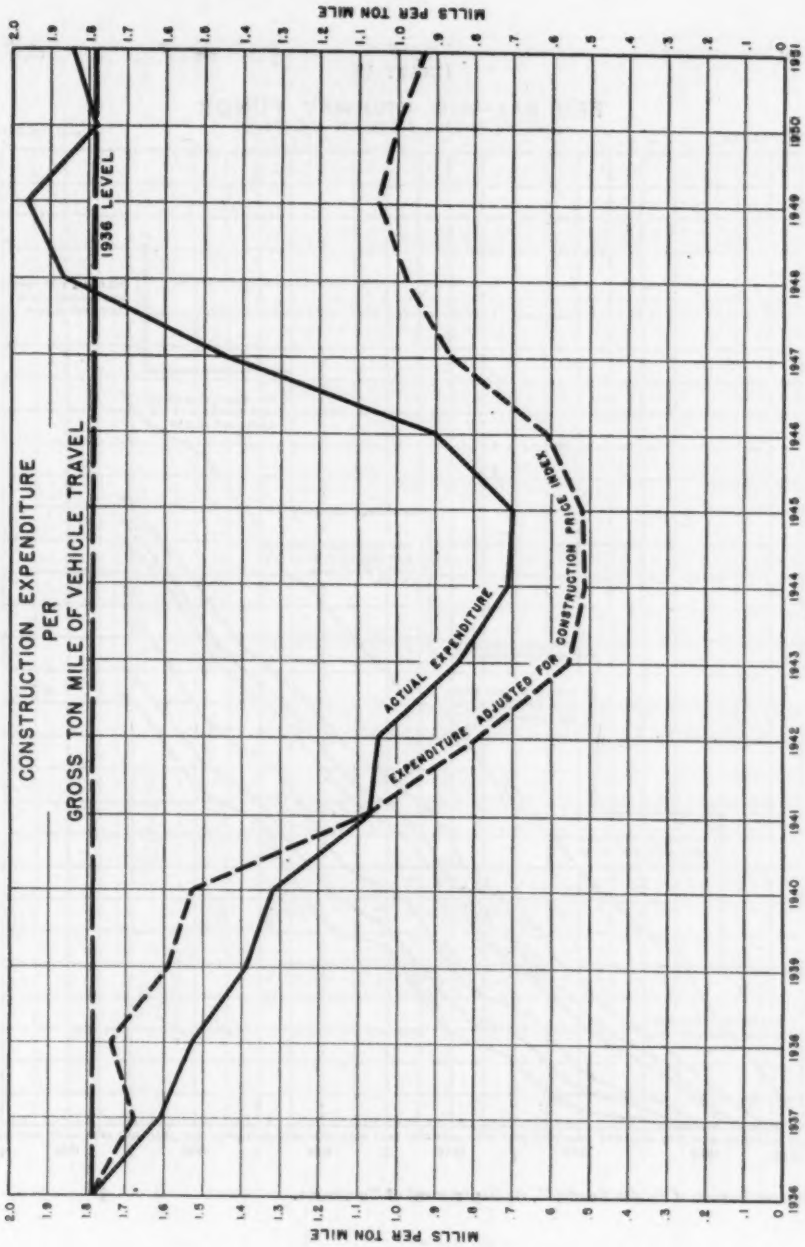
CHART 13

ANNUAL HIGHWAY CONSTRUCTION EXPENDITURES IN THE UNITED STATES, 1921–51 (ACTUAL EXPENDITURES AND IN CONSTANT DOLLARS)


HIGHWAY CONSTRUCTION EXPENDITURE IN MILLIONS OF DOLLARS
HIGHWAY CONSTRUCTION EXPENDITURE IN MILLIONS OF DOLLARS
ACTUAL EXPENDITURES
CONSTRUCTION VOLUME IN 1925-29 DOLLARS
YEAR

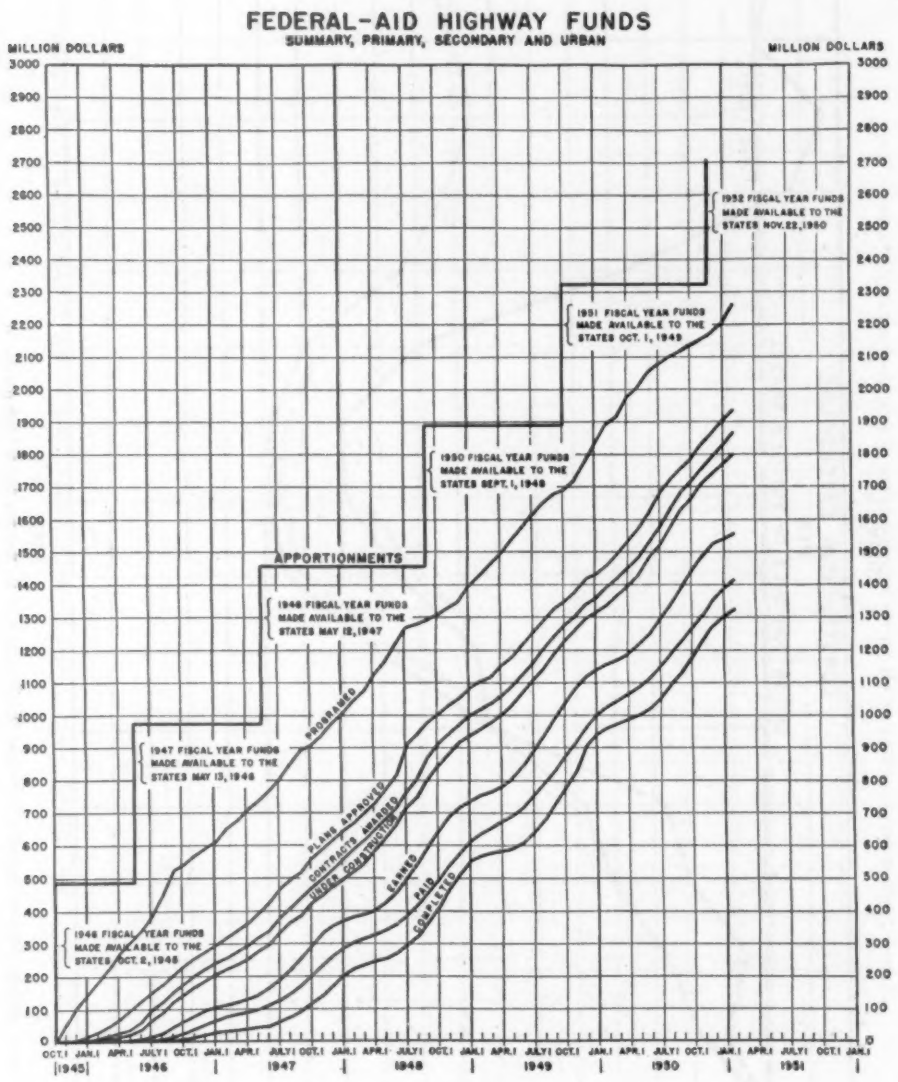
Source: Based on data obtained from the Bureau of Public Roads, U. S. Department of Commerce.

CHART 14



Source: Based on data obtained from the Bureau of Public Roads, U. S. Department of Commerce.

CHART 15


FEDERAL-AID HIGHWAY FUNDS
SUMMARY, PRIMARY, SECONDARY AND URBAN
MILLION DOLLARS
MILLION DOLLARS
1952 FISCAL YEAR FUNDS MADE AVAILABLE TO THE STATES NOV. 22, 1950
1951 FISCAL YEAR FUNDS MADE AVAILABLE TO THE STATES OCT. 1, 1949
1950 FISCAL YEAR FUNDS MADE AVAILABLE TO THE STATES SEPT. 1, 1948
APPORTIONMENTS
1948 FISCAL YEAR FUNDS MADE AVAILABLE TO THE STATES MAY 12, 1947
1947 FISCAL YEAR FUNDS MADE AVAILABLE TO THE STATES MAY 13, 1946
1946 FISCAL YEAR FUNDS MADE AVAILABLE TO THE STATES OCT. 2, 1945
PROGRAMED
PLANS APPROVED
CONTRACTS AWARDED
WORK UNDER CONSTRUCTION
EARNED
PAID
COMPLETED
OCT. JAN. APR. JULY OCT. JAN. APR. JULY OCT. JAN. APR. JULY OCT. JAN. APR. JULY OCT. JAN. APR. JULY OCT. JAN. APR. JULY OCT. JAN.
1945
1946
1947
1948
1949
1950
1951

Source: Bureau of Public Roads, U. S. Department of Commerce.

TABLE 19.—*Status of Federal-aid highway program, as of Oct. 31, 1952*

[In thousands of dollars]

State	Unprogramed balances	Active program											
		Programed only			Plans approved, construction not started			Construction under way			Total		
		Total cost	Federal funds	Miles	Total cost	Federal funds	Miles	Total cost	Federal funds	Miles	Total cost	Federal funds	Miles
Alabama	$3,432	$32,212	$16,361	518.3	$5,302	$2,706	103.5	$25,582	$13,075	411.7	$63,096	$32,142	1,033.5
Arizona	802	2,327	1,495	60.2	772	375	13.9	8,251	5,038	106.7	11,350	6,908	180.8
Arkansas	2,976	9,432	5,043	272.7	2,334	1,184	81.1	15,367	7,851	382.4	27,133	14,078	736.2
California	1,222	5,294	2,865	72.5	9,349	5,131	61.9	93,791	44,661	229.3	108,434	52,657	363.7
Colorado	1,574	6,605	3,699	134.2	1,696	943	53.1	9,952	4,884	140.1	18,253	9,526	327.4
Connecticut	4,159	2,280	1,242	7.8	4,063	2,026	10.3	9,379	4,765	15.7	15,722	8,033	33.8
Delaware	1,094	964	482	2.8	1,091	546	4.8	6,471	3,273	33.5	8,526	4,301	41.1
Florida	843	14,262	7,301	186.2	12,009	6,030	204.8	12,960	6,668	166.0	39,231	19,999	557.0
Georgia	2,120	15,867	8,171	356.5	7,119	3,639	99.1	36,181	17,167	545.5	59,167	28,977	1,001.1
Idaho	3,262	8,644	5,167	254.1	2,075	1,336	45.0	6,956	4,438	98.6	17,675	10,941	397.7
Illinois	6,886	36,084	19,565	358.9	18,469	10,378	107.4	71,205	35,836	634.8	125,758	65,779	1,101.1
Indiana	7,110	32,851	16,816	149.8	6,826	3,578	118.4	27,349	14,565	227.3	67,026	34,959	495.5
Iowa	2,102	12,260	6,630	283.2	964	516	49.7	20,894	10,477	958.1	34,118	17,623	1,291.0
Kansas	3,862	8,361	4,102	930.2	5,806	2,820	469.3	17,722	9,246	734.9	31,889	16,168	2,134.4
Kentucky	827	15,549	8,535	242.2	6,475	3,315	148.3	16,887	8,375	262.9	38,911	20,225	653.4
Louisiana	1,830	12,796	6,196	93.4	5,671	2,809	35.0	24,418	11,725	168.8	42,885	20,730	297.2
Maine	152	6,892	3,691	30.4	894	491	8.6	12,788	6,269	97.4	20,574	10,451	136.4
Maryland	4,913	7,836	3,605	58.0	2,916	1,294	31.1	9,999	5,375	30.3	20,751	10,274	119.4
Massachusetts	3,116	4,194	2,242	18.6	867	436		47,652	22,771	47.0	52,713	25,449	65.6
Michigan	1,208	21,731	11,031	349.3	4,567	2,294	103.3	61,990	27,097	321.8	88,288	40,422	774.4
Minnesota	2,784	8,350	4,704	880.1	1,354	790	127.3	19,257	10,364	648.2	28,961	15,858	1,655.6
Mississippi	1,866	14,486	7,349	533.6	4,902	2,569	154.9	16,410	8,542	512.5	35,798	18,460	1,201.0
Missouri	6,719	24,736	12,602	855.1	8,608	4,307	128.5	37,567	19,690	484.0	70,911	36,599	1,467.6
Montana	5,898	8,692	5,021	264.4	1,331	793	12.5	14,170	8,502	246.4	24,193	14,316	523.3
Nebraska	11,768	9,974	5,350	424.2	634	373	29.6	16,104	7,914	487.3	26,712	13,637	941.1
Nevada	1,868	5,711	4,480	185.2	1,673	1,097	91.3	2,733	2,236	70.3	10,117	7,813	346.8
New Hampshire	1,350	3,878	1,939	21.0	763	380	2.5	3,822	2,043	22.5	8,463	4,362	46.0
New Jersey	1,545	8,593	4,240	36.5	6,957	3,451	3.6	32,735	16,201	36.1	48,285	23,892	76.2
New Mexico	798	2,027	1,297	64.4	3,041	1,949	111.6	7,545	4,824	212.6	12,613	8,070	388.6
New York	11,695	83,222	43,916	151.2	38,969	19,109	60.6	127,711	57,923	498.6	249,902	120,948	710.4
North Carolina	2,160	20,145	9,747	326.4	5,301	2,518	91.5	27,620	13,473	496.7	53,066	25,738	914.6
North Dakota	2,084	4,383	2,324	707.6	1,592	794	287.3	9,346	4,713	812.9	15,321	7,831	1,807.8
Ohio	6,864	16,189	7,980	109.0	6,214	3,634	21.6	96,843	47,501	195.5	119,246	59,115	326.1
Oklahoma	2,925	10,540	5,878	158.8	7,700	3,886	163.3	21,333	11,316	244.8	39,573	21,080	566.9
Oregon	357	1,891	1,040	2.4	1,961	1,212	16.1	14,538	8,189	214.1	18,390	10,441	232.6

TABLE 19.—*Status of Federal-aid highway program, as of Oct. 31, 1952*—Continued

[In thousands of dollars]

State	Unprogramed balances	Active program											
		Programed only			Plans approved, construction not started			Construction under way			Total		
		Total cost	Federal funds	Miles	Total cost	Federal funds	Miles	Total cost	Federal funds	Miles	Total cost	Federal funds	Miles
Pennsylvania	$6,509	$21,401	$10,693	45.4	$11,428	$5,706	62.7	$86,654	$43,091	187.7	$119,483	$59,490	295.8
Rhode Island	836	3,033	1,516	27.7	920	460	2.7	17,745	9,249	26.7	21,698	11,225	57.1
South Carolina	1,609	11,139	6,024	198.7	2,293	1,184	141.9	15,710	8,003	308.9	29,142	15,211	649.5
South Dakota	582	5,689	3,244	469.0	2,097	1,357	120.0	7,994	4,726	456.7	15,780	9,327	1,045.7
Tennessee	2,528	9,779	4,863	361.3	8,019	4,017	113.4	31,446	14,466	392.7	49,244	23,346	867.4
Texas	5,473	3,545	1,644	118.5	12,103	6,469	369.1	55,340	29,533	992.5	70,988	37,646	1,480.1
Utah	890	3,683	2,839	115.0	1,030	776	19.8	9,251	6,987	148.8	13,964	10,602	283.6
Vermont	1,040	3,353	1,861	30.5	540	270	.8	6,755	3,396	56.1	10,648	5,527	87.4
Virginia	2,252	11,309	5,647	191.3	8,227	4,025	102.1	25,981	12,530	267.8	45,517	22,202	561.2
Washington	1,801	7,849	4,269	112.5	2,993	1,697	53.3	12,915	6,742	114.3	23,757	12,708	280.1
West Virginia	1,452	7,495	3,821	44.5	5,135	2,595	59.2	17,590	8,770	134.5	30,220	15,186	238.2
Wisconsin	3,519	11,316	6,615	184.5	2,409	1,001	65.1	34,644	16,976	403.5	48,369	24,592	653.1
Wyoming	215	709	483	18.7	998	672	30.5	8,398	5,541	149.8	10,105	6,696	199.0
Hawaii	928	3,204	1,579	6.4	542	265	15.1	12,983	5,827	31.3	16,729	7,671	52.8
District of Columbia	1,048	13,156	5,757	1.2	70	35	.2	4,685	2,339	.5	17,911	8,131	1.9
Puerto Rico	3,117	7,535	3,689	51.9	2,254	1,044	10.6	12,870	6,165	45.8	22,659	10,898	108.3
Total	147,970	603,453	316,650	11,076.3	251,323	130,282	4,217.3	1,344,489	671,328	14,512.9	2,199,265	1,118,260	29,806.5

Source: Bureau of Public Roads, U. S. Department of Commerce.

The present inadequacies of the highway system are, to some extent, adding to the present congestion on the system. When congestion slows down highway-transport vehicles, it automatically increases the number of vehicles necessary to carry a certain amount of goods between two points. The presence of these additional vehicles adds to the congestion and further increases the cost of highway transport. The lack of an adequate highway system is also, to some extent, reducing the moneys available for the rehabilitation of the system to adequate standards. A large part of the funds available for highway maintenance and rehabilitation comes from the motor fuel taxes and registration fees. The present inadequacy of the system undoubtedly reduces, to some degree, the use of motor vehicles and consequently the consumption of motor fuels. The same inadequacies certainly influence, to some degree, the inclination of the general public to purchase new motor vehicles. This loss of motor-fuel and motor-vehicle sales reduces the taxes collected and the moneys available for highway rehabilitation.

The passage of the Federal Aid Highway Act of 1952 which provides $575 million per year in Federal aid as compared to the previous authorization of $500 million per year, indicates that the Congress recognizes the need for increased highway expenditures and the national costs involved in neglect. The job done to date has been large but the failure of completions to keep pace with needs (and incidentally the way in which advance planning and construction have been aided by Federal programs) is shown in chart 13. The Federal aid is distributed in such a way that all parts of the country share in the "on site" work directly (table 19), as in the case of hospital needs and construction.

Current reports of recent actions by the State legislatures in increasing road user imposts, in authorizing general bond issues, and in authorizing the establishment of toll-road authorities who in turn may issue bonds, and the increase in taxable motor fuel use and in motor vehicle registration fees brought about by the increased use of motor vehicles indicate that the States will also have available increased amounts for highway purposes. The funds available for local road and street improvements should also increase as the land and property assessments increase in accordance with the general rise in land and property values. The exact extent of the increase is indeterminate but it is believed that a sizable increase is in prospect.

VI. Creating the Economic Climate in Which Our Needs Can Be Met

The preceding chapters have been concerned largely with future consumption needs and investment requirements. Only incidentally has the problem of transforming these "needs" into future demands been pointed out. It can be argued, of course, that the magnitude of the needs listed depends largely upon personal judgment or predilections and cannot become part of an economic discussion without specific forecasts as to probable levels of employment, willingness to invest, and willingness to save or consume. But the process of converting needs into effective demand is a circular one; without the pressing needs we should not have the employment or investment opportunities; without the latter the needs cannot be met. In many

ways the purposes of the preceding chapters will thus have been achieved if they help us in arriving at a "maximum productive employment" assumption by driving home to those who control the rate of capital outlays the very great potency of the forces which our type of economy faces from the increasing numbers added to our population annually. Recognition of the demand potentials can go a long way in assuring the purchasing power to make them economically "effective."

This section undertakes to point out some of the things which may be done to create the climate in which these growth factors can contribute to continuing prosperity rather than be ignored or their expansionary force be frustrated by business plans which fail to recognize the opportunities. It is of vital importance, moreover, that an increase in productivity accompany the increase in population and that this increase in productivity be widespread among all segments of the population and all regions of the country. In the creation of this climate, business, consumers, and Government all have a part.

While under our free-private-enterprise system the general role of the Government is and should be supplementary and supporting to the private parts of the economy, the changes in the economic situation which will be generated in this case involve in the first instance several major Government programs. Before considering the private sectors of the economy specifically, we shall, therefore, consider at least part of what the Government may do in creating an invigorating economic climate as the pattern of defense expenditures shifts.

The Government is today taking far more of the total national product of goods and services than any other single purchaser. What many people appear to be concerned about is possible disruption of production and employment when these Government purchases may be curtailed and the Government defense agencies will no longer be such substantial consumers. They are concerned about how the production gap may then be filled so that our maximum employment prosperity need not come to an end. Those who point only to the possible economic impact of the decreased Government demand must not forget, however, the corollary that with the decrease in expenditures the Federal Government will, by the same token, be in a position to release present restraints and stimulate private business by appropriate tax reductions. The effect of today's comparatively high level of taxation is to divert national resources and business energies and incentives into defense production and away from the private channels which normally contribute to the American standard of living. Just as fiscal policy expressed through these high tax levels tends to dampen inflationary forces and reduce nondefense bidding for our manpower and resources, the converse fiscal policy can stimulate private investment and spending by tax reductions when the defense needs lessen. Consumers will be left with larger disposable incomes after taxes. Portions of business firms' profits now taken as taxes will be available for increased dividends and investment in the firm. Reduction of excise taxes should increase sales by putting many commodities within the range of effective demand of larger groups of consumers. These same conditions which will bring about a reduction of the economic stimulus derived from Government defense purchases will automatically be compensated for by equal, although more controllable, forces freed to stimulate private investment and private economic activity.

This is not the place to make detailed recommendations as to precisely how tax schedules and reductions should be designed when the day comes that defense expenditures can taper off.[21] The Congress, to which will fall the happy task of framing a tax reduction bill, will at the same time be faced with the challenging responsibility. To it will come the necessity for determining how best the terms of a given amount of tax reduction may be devised so as to derive the most, or at least a roughly compensating amount of, stimulus from each possible dollar of reduction. While it is difficult or impossible to foresee the economic conditions at the time such a tax reduction may safely be put into effect, it is not too early for fiscal analysts, tax experts, and congressional committees to be giving study to this problem.

The problem is, of course, one of many aspects. Should the hoped-for tax reduction give greatest benefit to corporations and investors with a view to stimulating new private investment by increasing the availability of funds? Or should it give greater weight to the desirability of encouraging increased consumption expenditures by giving the benefits of tax reduction principally to individuals as consumers? This second approach may also be viewed as a means of indirectly stimulating investment, since the expanded effective demand of consumers will afford new and additional business opportunities. When the opportunity for tax reduction presents itself, should the present degrees of progressivity in the individual income tax be maintained by percentage-point reductions in the schedule or by percentage reductions ranging according to the size of income? Is a dollar reduction in excise taxes as conducive of economic stability as a dollar reduction in income taxes? It is impossible to answer this type of question definitively in advance. It would be comforting to know, however, that administrative agencies and the Congress, through joint efforts, were studying the problem in advance so that the universal desire for lower taxes, when possible, may be turned to a useful instrument for maintaining stability. Not only the amount but the form of tax reduction can be made to contribute to the ease of transition when defense expenditures are curtailed. Since the remedy—tax reduction—is so closely bound to the cause—expenditure reduction—which gives rise to the fear of economic trouble, we have put tax reduction foremost among the Government's devices compensating for declining defense stimulus.

Other things being equal, tax reduction would thus be the natural corollary to declining defense expenditures and should provide an alternative stimulus to private business investment and activity. There are, of course, numerous other things which the Government may do in implementing the policy set forth in the Employment Act of 1946.

Federal monetary policy is another area in which flexibility and adaptation to changed circumstances can help to smooth the over-all business picture. While many skeptics will point out that monetary policy was not conspicuously successful in the 1930's in stimulating business expansion, policies of the monetary authorities can at least be promptly converted from anti-inflationary to a neutral or anti-deflationary position. So long as Federal defense expenditures continue to withdraw a large part of the national product from the private markets, the monetary authorities, faced with the constant

[21] For a list of the reductions under existing law, see committee print, Federal Tax Changes and Estimated Revenue Losses Under Present Law, Joint Committee on the Economic Report, November 1952.

threat of inflation, must follow a relatively "tight money" course. By open-market policy, reserves of banks are held in check; whether as a cost factor or only a moral influence, rediscount rates are kept relatively firm. The effect of such steps is to discourage inflationary private loans while the Government is such a substantial and urgent bidder in the goods and resources markets. When the time comes that Government is no longer in need of defense output, open-market purchases, the discount rate, and other devices can then be adapted so as to encourage business to proceed with expansion in recognition of the private opportunities for profit.

Since we have been discussing the steps which the Government may take in smoothing the transition from defense build-up to defense maintenance, the role of civil works must also be mentioned. As has been set forth in detail in earlier portions of this report, to keep up with the minimum requirements of a growing population and a $300 billion to $400 billion economy calls for the maintenance and construction of public works by all levels of Government at well above present rates of activity. Highway construction, school-construction needs—to say nothing of flood-control, reclamation, and similar projects—will provide a large market for materials and manpower as materials and funds become available for these purposes. While the wisdom of individual large civil-works expenditures may be debated by businessmen, workers, and consumers alike, the sustaining force generated in just keeping up with the need for civil works generally cannot be overlooked. Some of the requirements and problems of advance planning are discussed in Appendix A of this report.

There are, of course, a large variety of collateral governmental activities and policies which may materially contribute toward smoothing the economic transition from defense build-up to defense maintenance. We have already referred to the express declaration of policy contained in the Employment Act of 1946, placing all Federal facilities squarely in the service of maintaining maximum employment, production, and purchasing power. For example, a subcommittee of the Joint Committee on the Economic Report, studying the flow of private investment, concluded just prior to the Korean invasion that the adequate financing of small independent business was a prerequisite to steps aimed at regularizing private investment.[22] The subcommittee recommended that the Federal Government provide the statutory support for supplemental channels within the present private banking system whereby specialized capital institutions would provide loans and equity capital to small enterprise. Here is a case in which the Government, by providing little more than the appropriate statutory framework, can go a long way in helping private enterprise solve the growth problems of our expanding economy without direct Government aid. Bills which would provide such institutions have been introduced into the Congress, and their active consideration awaits the time when our major concern shifts from national security and inflation to a more normal pattern.

In the area of assuring adequate raw materials, there is, for example, much which the Federal Government can do. In this connection we have the recent report of the President's Materials Policy Commission.

[22] Volume and Stability of Private Investment (Report of the Subcommittee on Investment of the Joint Committee on the Economic Report), S. Doc. 149, 81st Cong., 2d sess.

The Commission, having in mind particularly the quarter century between 1950 and 1975, concluded that—

> actual shortages are not the threat in the materials problem. We need not expect we will some day wake up to discover we have run out of materials and that economic activity has come to an end. The threat of the material problem lies in insidiously rising costs.[23]

The Commission's report goes on to make scores of recommendations as guides for Federal action and policies which will contribute to that end. While at the moment the materials problem seems most serious in the framework of defense requirements, the proposals of the Commission call for consideration as permanent peacetime measures as well. In the end the materials problem may itself well become a stimulant to the economy in the postdefense period for it is in the area of cost control by the substitution of new materials and new technology that American industry has always excelled. The demand for products gives rise to solving the supply problems and whatever the Federal Government can do to help in solving these problems will be helpful in maintaining maximum employment.

The extent to which government may stimulate housing by guaranties and by providing mortgage markets has been demonstrated so recently and so conclusively that we need not discuss the details of appropriate governmental programs in that area.

Because of the importance of fiscal policy we have mentioned first the varied aspects of the Government's own role in the postdefense period. Actually, of course, the role of business and of consumers is equally if not more important than that of Government.

The magazine Business Week recently (May 25, 1952) commented editorially on the role of business in meeting the problems of economic transition and the realization of the vast opportunities beyond in the following words:

> Prospects are bright for an expanding economy meeting the needs of a higher living standard for a larger population. The short-term problem of transition can be dealt with and the intent of the Employment Act of 1946 carried out without abject reliance on government if business acts courageously in the belief that fundamentally the economy is a growing, expanding one that will penalize the faithless and reward the forward-looking.

Specifically there are several things which business may do to assure itself of continued "good business" when defense contracts and expenditures are curtailed. The importance of private investment in maintaining high-level employment is universally recognized by businessmen and economists. The wide variability in the volume of private investment which has characterized the economy in the past has already been mentioned. This has brought with it unpleasant ups and downs in profits and employment. Economic statesmanship in the postdefense period directed toward smoothing the course of investment plans and anticipating market demands well in advance can contribute materially to keeping employment at steady high levels. Temporary set-backs or month-to-month lulls in business should not (and, we believe, will not) divert business investment plans from following through on the promising longer run prospects.

[23] Report of the President's Materials Policy Commission, Resources for Freedom (June 1952), H. Doc 537, vol. I, 82d Cong., 2d sess.

Another area in which business must assume prime responsibility in creating a climate in which the withdrawal of Federal defense expenditures need not bring "recession" lies in the price policies to be followed. The high and increasing consumption demands for our increased population need not be demonstrated further than has been done in earlier chapters. But, these can certainly be rendered economically ineffective by industrial price policies which would result in pricing large numbers of these potential and eager consumers "out of the market." Cost reduction and price policies which pass a share of the benefits on to the ultimate consumers are requisites to converting the economy back to one dependent primarily on private consumption and demands.

The ultimate falling-off of Federal defense expenditures should cause no more than a temporary readjustment period in the economy if businessmen and private investors "pick up the ball" as may be expected of key actors in a free enterprise system. Without discounting in the slightest the positive role which the Federal Government must take, it is important to emphasize the challenge which will almost certainly face private industry. An ex-businessman, an active consulting economist on the problems of business forecasting, Mr. Frank D. Newbury, in a recent Harvard Business Review, pointed out the issue quite succinctly. Had the words been spoken by an "authority" in Government they might have seemed to carry an implied threat.[24] Spoken by a realistic and experienced businessman they may, however, best be interpreted as words of assurance against any lurking fears of widespread unemployment or recession. At any rate few will rise to dispute when Mr. Newbury says:

> If private investors do not do their large share of the total investment spending, the Federal Government will undoubtedly take over the job. The practical question is not whether we will have a depression in 2 or 3 years but whether private investors or Government will do the necessary spending to avoid depression.
>
> The practical question for businessmen to consider is not whether the country will suffer from a major depression at the end of the current spending program, but rather whether private business and individual investors will spend enough to produce prosperity, as they did following the Second World War, or whether the Federal Government will take over the spending job with longer range consequences that few of us will like.

Finally, we come to the role of private consumption. The desire and ability of our people to consume the product of our industries is, of course, the backbone of all nonwar, nondefense economics. While it is the role of business, as the employers of labor and capital, to provide through wages, interest, and dividends the necessary purchasing power with which the products of industry may be purchased, the behavior of consumers themselves plays an important part in determining the level of economic activity.

Mass consumption is perhaps the greatest economic stabilizing influence we have. Over the years there has been a broadened distribution of income. These developments enlarge the assured consumer goods markets. During the defense build-up period, the interest of consumers as individuals and as a group has best been served by curtailing purchasing and by increased private savings. Increased savings, under present conditions, lessen inflationary pressures and at the

[24] Newbury, Frank B., A Business Forecast, 1952-55, Harvard Business Review, vol. XXX, No. 2, March-April 1952, pp. 96, 105.

same time provide a backlog of resources upon which consumers may draw when materials and the services of production are less acutely needed for national security. When defense expenditures taper off one promising factor which will contribute to sustaining business and employment may well be the private demand supported by the large volume of stored-up savings. Liquid assets of individuals, as Secretary Snyder of the Treasury recently pointed out, reached a total of approximately $210 billion at the end of 1951. Nearly $50 billion of this amount represents the investment of individuals in United States savings bonds. The back-log of these savings represents a reserve of purchasing power in the future of unprecedented, almost incomprehensible, amounts. When defense expenditures slacken and the economy can devote a larger and larger share of its energies to private production, consumers can spend more freely of their current incomes and of this stored-up reserve. They may be expected to do so if business does it share in providing gbods at reasonable costs while by its investment decisions helping to assure workers of continued full employment.

The ability of the economy to adjust to shifts will in the end depend principally upon the attitudes and behavior of businessmen, investors, and consumers at that time. As our ability to produce increases and Government defense purchases level out, will businessmen and consumers go ahead with their private plans and expenditures, or will they too withdraw from the market out of fear or uncertainity about the ability of the private economy to go ahead without artificial stimulus? If they do, it will not be from lack of opportunities for growth and investment; of that we can be certain.

APPENDIX A

The Advance Planning of Public Works

One of the major problems which has interfered with the flexibility of large-scale programs of needed public works has been the great amount of time which must be allowed for the acquisition of sites and the preparation of detailed plans and specifications before actual construction can begin. Various devices have been suggested for avoiding this dilemma, most of them originating at a time when it was thought that most cyclical fluctuations in unemployment could be corrected by the simple process of scheduling regular public works so that a larger amount would be constructed in times when private business was less active and a smaller amount when business was more active.

With the mass unemployment of the 1930's, difficulties of magnitude and administration soon made it clear that public works, no matter how well planned, could not alone be used as a general cure-all for business cycles. Technicians and administrators then set about to develop and try out other tools, mostly in the field of monetary and fiscal policy, to bring about the economic stabilization they were seeking. The function of public works was redefined in the narrower terms of leveling out the swings in the construction industry with the limited objectives of achieving a better use of construction resources and neutralizing the effect of construction as only one factor in the general economic cycle. But the need for some form of advance planning was still apparent even with these more limited goals.

During World War II construction needs accumulated at an increasingly high rate as the pace of economic activity quickened and private and public facilities wore out or lacked adequate capacity. Some public construction essential to sustaining production was carried on, but for the most part wartime expansion depended upon the public works which had been built in the thirties in connection with the programs to stabilize employment. With hopes for the end of the war, came expectations of widespread unemployment during the period of economic readjustment. While realizing that it could no longer do the job alone, concern that the construction industry be ready immediately to carry its share of absorbing the workers who would be thrown on the postwar job market quickened the interest in public works and in having available a shelf of planned projects.

In June 1944 a special House Committee on Postwar Policy and Planning recommended: [1]

> When the construction industry returns to peacetime full capacity, the Federal Government should be fully prepared to participate in holding construction at a level that can be sustained without courting sudden deflation in the industry. The Federal Government should take the lead in planning for a healthy relationship between total construction and total national income. It should cooperate in the timing of both Federal public works and non-Federal public works so that they may not force up the bidding for construction during high business activity and so that they may help to take up the slack in low points of construction activity.

[1] Postwar Economic Policy and Planning, Seventh Report of the House Special Committee on Postwar Economic Policy and Planning, pursuant to H. Res. 60, Union Calendar No. 252, H. Rept. 852, 79th Cong., 1st sess. (Postwar Public Works and Construction), p. 2.

The first program of Federal assistance for advance planning of non-Federal public works

From the standpoint of State and local governments, particularly the latter, the final step of preparing detailed plans and specifications has posed some most difficult problems. Local improvements are customarily paid for out of bond issues and many cities are prohibited from accumulating reserves to either pay for construction or to finance planning of construction. Recognizing the significance of these difficulties, Congress in 1944, under title V of the War Mobilization and Reconversion Act, provided for advances to State and local governments to "aid in financing the cost of architectural, engineering, and economic investigations and studies, surveys, designs, plans, working drawings, specifications, procedures, and other action preliminary to the construction of public works (exclusive of housing)."

When the legislation was being considered, questions were raised as to the desirability of inserting a provision requiring interest on the use of the funds until they were repaid and as to the steps which could be taken to make certain that the funds would be repaid at all. It was also felt that there might be danger of local architects, engineers, and planners encouraging their governments to ask for loans to plan unnecessary projects as a kind of personal make-work scheme—on the theory that it wouldn't cost the local government anything anyhow.

The interest provision was eliminated on the technical grounds that if interest were charged the "advance" became a "loan" and as such unavailable to many cities whose charters forbid making such loans. In response to the questions about made-work there was included in section 4 of the act a provision which reads:

> If the construction of public works is not undertaken or started within 3 years after the full amount of the loan or advance therefor has been made and the Administrator of General Services shall determine (which determination shall be conclusive), after due notice and hearing, that the public agency has not acted in good faith either in obtaining the loan or advance or in failing to undertake or start the construction of such public works, the Administrator shall demand prompt payment of such loan or advance. In the event the loan or advance shall not have been repaid within said 3-year period, such public agency shall not be eligible to apply for loans or advances on any other public works.

Some Members of Congress also expressed concern that governments availing themselves of planning advances would plan beyond their means with the expectation of receiving Federal aid for construction at a later date. To meet this objection, the first section of the act makes clear that—

> * * * the making of loans or advances hereunder shall not in any way commit the Congress to appropriate funds to undertake the construction of any public works so planned.

In addition, administrative regulations were established which did not permit the approval of an application for an advance unless there is complete evidence that local resources are sufficient to pay for the project.

A total of $65 million was appropriated under this authorization as follows: $17,500,000 in the Independent Offices Appropriation Act, 1946, Public Law 49 of the Seventy-ninth Congress; $12,500,000 in the First Deficiency Appropriation Act, 1946, Public Law 269, Seventy-ninth Congress; and $35,000,000 in the Third Deficiency Appropriation Act, 1946, Public Law 419, Seventy-ninth Congress.

The accomplishments of the first advance planning program may be briefly stated as follows: Federal advances in the amount of close to $50 million were made available for the blueprinting of State and local projects having an estimated construction cost of about $2.5 billion. Through September 30, 1952, plans had been brought to completion on over 95 percent of the projects which had been approved. Approximately 40 percent of all completed planning had been put under construction, and the Federal planning advances repaid to the United States Treasury, leaving a planned shelf of projects of $1.5 billion from the first advance planning program.

The second advance planning program

To assure that the shelf of plans authorized under the first advance planning program would not be depleted, as blueprinted projects were placed under construction, the Congress passed Public Law 352 in October 1949, authorizing a second advance planning program in the amount of $100 million. This law was much the same as that authorizing the first program, except that it permitted greater discretion in apportioning planning funds among the States.

Specifically, the authorizing legislation provided for the apportionment of funds as follows:

> Funds appropriated for the making of loans or advances hereunder shall be allocated * * * among the several States in the following proportion: Seventy-five per centum in the proportion which the population of each State bears to the total population of all the States, as shown by the latest available United States census, and 25 per centum in accordance with the needs of the States as determined by the said Administrator: *Provided*, That the allotments to any State shall aggregate not less than one-half of 1 per centum of the total funds available for allotment hereunder.

The term "State" includes the District of Columbia, Alaska, Hawaii, and Puerto Rico.

Each planning advance approved made available a sum to help meet the cost of drawings, specifications, and other definite plan preparations for a State or local public work. It is to be repaid, without interest, if and when the construction of the public works is undertaken or started.

Any non-Federal public agency which was authorized to construct public works could apply for a planning advance. These public agencies include State governments and their agencies and political subdivisions, such as counties, cities, towns, townships, school districts, water and sewer districts, levee districts, irrigation districts, special taxing districts, and other duly authorized public agencies. Private or privately controlled organizations were not eligible.

Public works for which planning advances were not eligible under the authorizing legislation and the regulations issued pursuant thereto included public housing projects of Federal, State, or local housing agencies or authorities, and public works for which Federal funds are already available under various Federal aid programs. In the latter category are Federal-aid highway projects of the Bureau of Public Roads; Federal-aid airport projects of the Civil Aeronautics Administration; and Federal-aid hospital projects of the Public Health Service. All other non-Federal public works projects were eligible for planning, including such types as schools and other educational facilities; hospitals and health facilities; highways, roads, and streets; bridges, viaducts, and grade separations; airports; sewer, water, and

sanitation facilities; other public buildings; parks and other recreational facilities; and miscellaneous public facilities.

The first funds made available for the second advance planning program were voted under Public Law 430, Eighty-first Congress (Second Supplemental Appropriation Act of 1950, passed October 28, 1949); $25 million was given under this appropriation to reactivate the program in fiscal year 1950, all but three-quarters of a million of which were earmarked for planning advances. Program operations in late 1949 and during the first half of 1950 were conducted much the same as under the first planning program. However, at the onset of the Korean crisis, the decision was made to discontinue approvals under the broader criteria previously used and to limit project approvals exclusively to defense-connected or essential civilian public works.

In addition to the $25 million appropriated under Public Law 430, Public Law 759 (81st Cong., approved September 6, 1950), provided almost $33 million of new funds for fiscal year 1951, with slightly more than $31 million earmarked for planning advances.

From a total of $55,430,100 earmarked for planning advances under Public Law 430 and Public Law 759, the Bureau of the Budget reserved $15 million under section 1214 of the General Appropriation Act of 1951, and an additional $13,100,000 was rescinded by the Congress in the Independent Offices Appropriation Act of 1952, leaving $27,330,100 available for planning advances.

Authority to approve advances for the planning of new projects expired on October 13, 1951, and no new applications have been accepted since June 29, 1951. As of September 30, 1952, 1,284 applications were in approved status, the estimated construction cost totaling $1.1 billion and the planning advances amounting to $22.1 million. Plan preparation has been completed on 886 projects with an estimated construction cost of $551 million and planning advances totaling $10.5 million. Actual construction work has been started on 383 projects with an estimated cost of $196 million and advances repaid to the United States Treasury have amounted to $3 million. Plans are still in preparation for 398 projects with an estimated construction cost of $550 million.

The following table shows the status of approved projects under the second advance planning program:

	Number of projects	Estimated cost of public works
Total approved projects	1,284	$1,101,000,000
Construction work started	383	196,000,000
Potential reserve	901	905,000,000
Available reserve (projects fully planned, not under construction)	503	355,000,000
Projects in process of planning	398	550,000,000

Of the 1,284 applications approved since the beginning of the program, 506 were for sewer facilities, 373 for schools and other educational facilities, and 186 for water facilities. Advances granted for these three types of projects comprised 78 percent of the total. The remaining 219 approved projects were for highways, bridges, hospitals, airports, and miscellaneous public works.

Advance plans for non-Federal public works prepared without Federal assistance

The two programs for providing funds for non-Federal public works have been widely used but in addition there are a number of State and local government projects which have been planned without the loan of Federal funds, particularly by the larger governmental units. In 1947, the estimated total cost of such planned projects was $1.2 billion, according to a survey by the Bureau of Community Facilities.[2] More recent figures on the extent of such planning are not available. It is reasonable to assume, however, with the limitations on materials since 1950 that some of these projects have not been constructed. Meanwhile, too, other projects have been approved and planned, awaiting the day when materials become available.

Total available planned non-Federal public works

If the 1947 estimate is taken as indicative of the general magnitude of the above program, non-Federal public works now available in blueprint form or where planning is actively in process would total as follows:

	Billions
Available from first advance planning program	$1.5
Available from second advance planning program	.9
Available from local planning activities	1.2
Total	3.6

Reserve of planned Federal public works projects

The Federal Government, in addition to commitments to complete $3.5 billion of going civil public works in 1953, has been authorized to undertake almost $16 billion more of construction after 1953. Of this, the Corps of Engineers has an estimated $2 billion of authorized projects planned to the stage where construction can be undertaken; and advance planning is in various stages of completion on another $2.7 billion of authorized work. The Bureau of Reclamation has no large reserve of completed plans, but plans are now in process of preparation for $260 million of projects, and additional planning will continue in 1953. The Tennessee Valley Authority has an estimated $236 million of projects planned and plans for another $1.1 billion of work are in process of preparation. Other Federal agencies have much smaller quantities of planning under way. The aggregate of planned direct Federal projects ready for construction is $2.6 billion, with another $4.4 billion of project plans in process of preparation.

In addition to this category, States, local authorities, and cooperatives receiving Federal loans and grants have plans completed for a total of $3 billion of projects, with another $4 billion in preparation.

[2] Then in the Federal Works Agency, now in the Housing and Home Finance Agency.

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